SUPER®

SUPER® C2G41

USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

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Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the Supermicro C2G41 motherboard. The C2G41 motherboard supports a single Intel® Core™ 2 Quad/Duo, Pentium® and Celeron® processor with a system bus speed of 1333/1066/800 MHz. The Intel Core 2 Quad/Duo, Pentium® and Celeron processor supports the 775-Land Grid Array Package that interfaces with the motherboard via an LGA775 socket. With support for Dual-Core and Quad-Core Technology and featuring the Intel G41 Express chipset, the C2G41 also features HDMI 1.3 (High Definition Multimedia Interface), a S/PDIF Port (Sony/Philips Digital Interchange Format), USB 2.0 sockets, 7.1 Audio, a Gb LAN port and Intel GMA 4500 graphics, giving the C2G41 motherboard a good balance of price and system performance. Please refer to the motherboard specifications pages on our web site (http://www.supermicro.com/Products/) for updates on supported processors.

This product is intended to be professionally installed and serviced by a technician.

Manual Organization

Chapter 1 describes the features, specifications and performance of the mainboard and provides detailed information about the chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the system setup stored in CMOS.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS POST Messages.

Appendix B are setup instructions for installing Microsoft Windows.

Appendix C provides Driver software installation instructions.

Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Warning: Important information given to ensure proper system installation, to prevent bodily injury or damage to the components.

Note: Additional Information given to differentiate various models or to ensure correct system setup.

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Chapter 1

Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

All of the following items are included in the Retail Box Only:

One (1) Supermicro Mainboard

Two (2) SATA cables (CBL-0044L)

One (1) I/O Shield (MCP-260-00032-ON)

One (1) Supermicro CD containing drivers and utilities (CDR-C2)

Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
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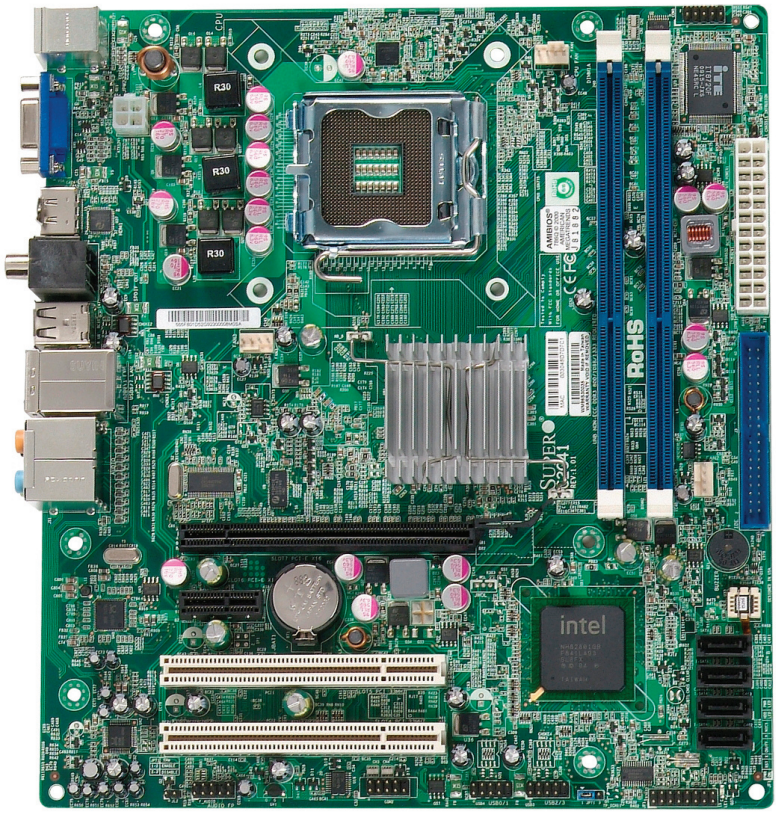
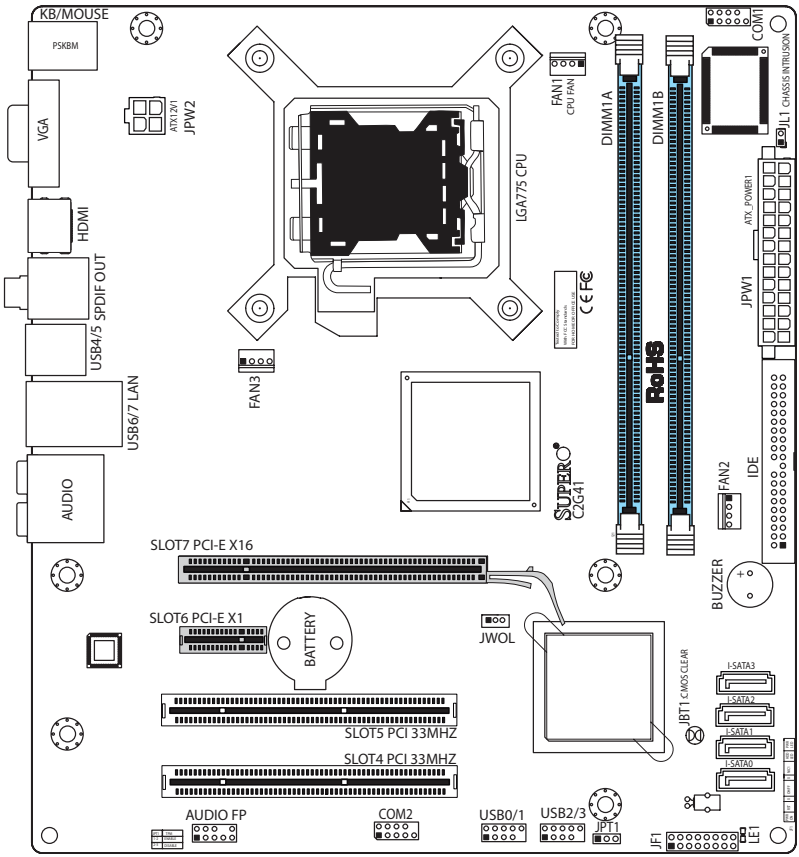
Web Site: www.supermicro.com.tw
Technical Support:
Email: support@supermicro.com.tw
Tel: 886-2-8228-1366, ext.132 or 139

SUPER® C2G41 Image



Note: *All pictures and drawings shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as those in this manual.*

Motherboard Layout



Important Notes to the User

- Jumpers not indicated are for test purposes only.
- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "■" indicates the location of "Pin 1.'

C2G41 Quick Reference

Jumpers	Description	Default Setting
JBT1	CMOS Clear	(See Chapter 2)
JPT1	Trusted Platform Module Enable	Pins 1-2 (Enabled)

Connectors	Description
JPW1	ATX 24-Pin Power Connector
COM1, COM2	COM1 and COM2 Header Connectors
DIMM 1A, 1B	Memory Slots
FAN 1-3	Fan 1: CPU Fan, Fan 2/3: Chassis Fan Headers
HDMI	Back Panel HDMI Port
IDE	IDE Connector
JF1	FP Control Panel Header
JL1	Chassis Intrusion Header
JWOL	Wake-on-LAN Header
BUZZER	Internal Buzzer/Speaker
AUDO FP	Front Panel Audio Header Connector
KB/MOUSE	PS/2 Keyboard/Mouse
SPDIF	S/PDIF Out Header
JPW2	12V 8-Pin Power Connector
AUDIO	Back Panel Audio Ports
LAN	Ethernet (Gigabit LAN) Connector
LE1	Standby Power LED Indicator
I-SATA 0,1,2,3	SATA Headers
Slot 4, 5	PCI 33 MHz Slots
Slot 6	PCI-Express x1 Slot
Slot 7	PCI-Express x16 Slot
USB 0/1, 2/3	(Front Panel) USB Ports
USB 4/5, 6/7	(Back Panel) USB Ports
VGA	Video/Graphics Connector

Motherboard Features

Supported Processors

- Single Intel Core 2 Duo/Core 2 Quad/Pentium®/Celeron Processor with a system bus speed of 1333/1066/800 MHz.
- Supports Intel Dual Core Technology, Thermal Management 2 (TM2).

Memory

• Supports single or dual channel unbuffered non-ECC DDR3 memory, up to 4GB at 1066/800 MHz for single channel mode or dual-channel interleaved mode in four DIMM sockets. **Note: See Section 2-4 for details.**

Chipset

- Intel G41 Express
- Intel ICH7

Expansion Slots

- One (1) PCI-Express x16
- One (1) PCI-Express x1
- Two (2) 32-bit PCI 33MHz

BIOS

- 8 Mb Firmware, AMI BIOS® Flash BIOS
- Plug and Play (PnP), APM 1.2, PCI 2.2, ACPI 1.0/2.0, USB Keyboard Support

PC Health Monitoring

- Onboard voltage monitors for CPU core, G41 core and memory voltage, +5V, +12V and +3.3V.
- 3-Phase switching voltage regulator
- Adjustable CPU Clock frequency ratio
- 3 4-pin fan headers (supports 3-pin fans w/o speed control)
- Status monitor for speed control, on/off control
- Low-noise fan speed control
- Pulse Width Modulation (PWM) fan connector
- CPU/Chassis temperature monitoring
- CPU thermal trip support
- Thermal Monitor 2 (TM2) support

ACPI Features

- ACPI/ACPM Power Management
- Main switch override mechanism
- Keyboard wake-up from soft-off
- Power-on mode for AC power recovery

Onboard I/O

Disc Drive

- Four (4) SATA ports
- One (1) EIDE Controller (supports 2 IDE devices)

Video and Graphics

- One (1) Onboard VGA Connector (Intel GMA X4500)
- One (1) HDMI 1.3 port

Audio

- Six (6) I/O Jacks for High Definition audio support (VIA VT1708BHD 7.1)
- One (1) S/PDIF Digital Coaxial Port
- One (1) S/PDIF Digital Optical Port

Networking

- One (1) RJ45 10/100/1000 Ethernet port (Realtek RTL8111C-VC-GR)

Security

- Trusted Platform Module (TPM 1.2) support

Serial, USB, Keyboard and Mouse

- Two (2) 16550 Fast UART serial headers (on-board)
- One (1) PS/2 mouse and One (1) keyboard port
- Two (2) USB 2.0/1.0 internal headers (four devices)
- Four (4) rear USB 2.0/1.0 ports (back panel)

Other Features

- Super Doctor III
- Lead Free
- RoHS compliant

CD Utilities

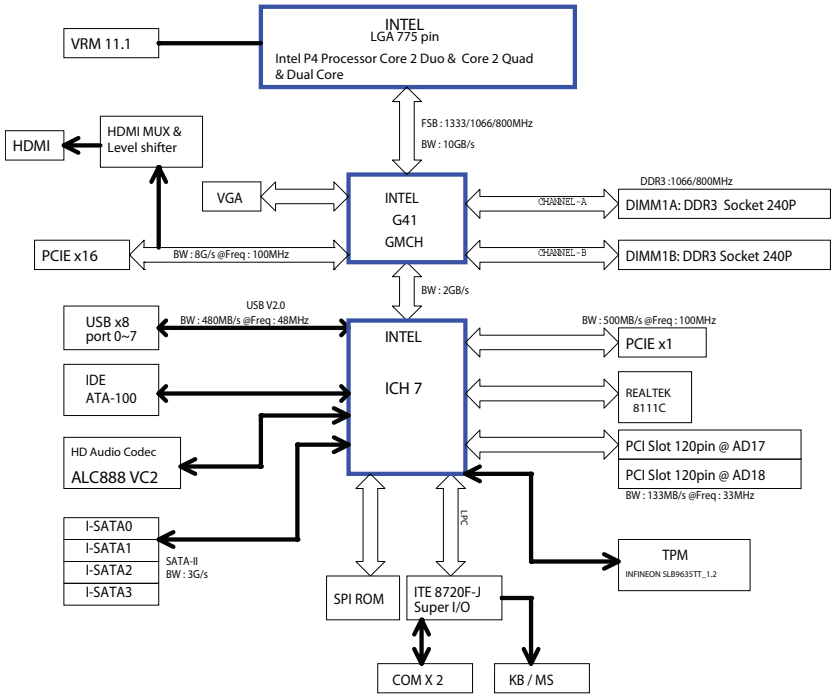
- BIOS flash upgrade utility
- Drivers and software for the Intel G41 Express chipset utilities

Dimensions

- Micro ATX form factor, 9.6" x 8.6"

Note: Specifications are subject to change without notice.

Block Diagram



C2G41 System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the following pages for the actual specifications of each motherboard.

1-2 Chipset Overview

The Intel® G41 Express Chipset, combined wtih the Intel Core™ 2 processor family and the ICH7 I/O controller offers an uncomparable match to deliver new digital capabilities for the home consumer. Also included with the C2G41 motherboard is the Intel Graphics Media Accelerator (Intel GMA X4500) for built-in support for smooth high-definition video playback without the need for third-party accelerators or decoders.

Intel Core 2 processor Support

The Intel G41 Express chipset fully supports the Intel Core 2 Duo/Quad/ Pentium processor and Intel Celeron processor. Among the features supported are:

- 1333/1066/800 MHz System Bus
- Fast Memory Access
- Dual-Channel DDR3 Memory
- Intel Flex Memory Technology
- Intel Clear Video Technology
- HDMI Interface
- Intel High Definition Audio

Intel ICH7 System Features

The I/O Controller (ICH7) provides the data buffering and interface arbitration required for the system to operate efficiently. It also provides the bandwidth needed for the system to maintain its peak performance. The ICH7 supports PCI slots, Serial ATA ports, USB 2.0 ports and dual channel IDE devices. In addition, the ICH7 offers the Intel Matrix Storage Technology which provides various RAID options for data protection and rapid data access. It also supports the next generation of client management through the use of PROActive technology in conjunction with Intel's next generation Gigabit Ethernet controllers.

Note: *For detailed information, please refer to Intel's website and search for the keywords "G41 Express".*

1-3 Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power on state. See the Power Lost Control setting in the BIOS chapter of this manual to change this setting. The default setting is **Last State**.

1-4 PC Health Monitoring

The motherboard has an onboard System Hardware Monitor chip that supports PC health monitoring.

The onboard voltage monitor will scan the voltages of the Onboard Voltage Monitors for the Onboard voltage monitors for the CPU core, G41 core and memory voltage, +5V, +12V and +3.3V continuously. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor by using SuperO Doctor III.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating- system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with Windows 2000, Windows XP, Windows 2003, Windows 2003 Servers.

Enhanced Power Management

The onboard ICH7 chip provides advanced power management functions that will greatly improve the performance of various low-power (suspend) states and en-

hance clock control. A hardware-based component provides software-independent thermal management that is compatible with the ACPI Revision 3.0a.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it will function like a normal keyboard during system boot-up.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 1 GHz and faster.

The SUPER® C2G41 accommodates 12V ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. A 2-Amp of current supply on a 5V Standby rail is strongly recommended.

It is strongly recommended that you use a high quality power supply that meets 12V ATX power supply Specification 1.1 or above. It is also required that the 12V 8-pin power connection (JPW2) be used for high-load configurations. In areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Versatile Media Capabilities

High Definition Audio

The High Definition Audio Controller embedded in the ICH7 delivers up to 4 codecs that can be used for different types of codecs, such as audio and modem codecs. Operating at 3.3V or 1.5V, the embedded Audio Controller supports a multi-channel audio stream, 32-bit sample depth, up to 192 kHz of same rate, and can be used with a variety of microphones for input. With these versatile audio capabilities built in, the C2G41 provides the user with a surreal audio experience that is larger than life.

High Definition Video (HDMI)

The C2G41 also includes a High-Definition Multimedia Interface (HDMI) connector on the motherboard. This connector transmits digital video signals, providing superb multimedia interface support.

With these versatile audio and video capabilities built in, this motherboard provides the user with a state of the art audio/video experience that is larger than life.

1-8 Super I/O

The C2G41 features the ITE IT8720F-JX LPC I/O and provides two high-speed, 16550 compatible serial communication ports (UARTs). Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with the ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through a SMI or SCI function pin. It also features auto power management to reduce power consumption.

Chapter 2

Installation

2-1 Electro-Static Sensitive Devices

Electro-static Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

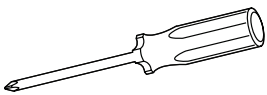
Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

2-2 Motherboard Installation

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

User-Supplied Tools & Hardware Needed



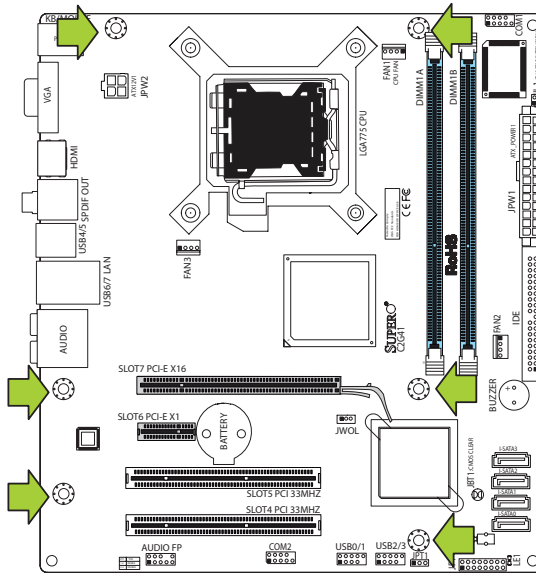
Philips Screwdriver

Pan head screws (8 pieces)

Stand Offs (8 pieces)
(Only if needed)

Location of Mounting Holes

There are six (6) mounting holes on this motherboard indicated by the arrows.

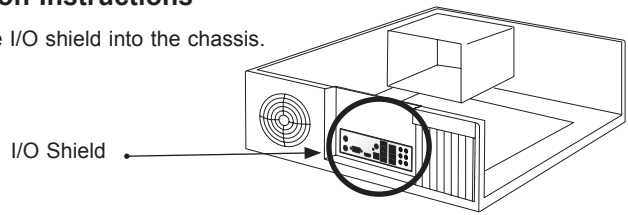


STOP

Caution: 1) To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to prevent damage to these components when installing the motherboard to the chassis.

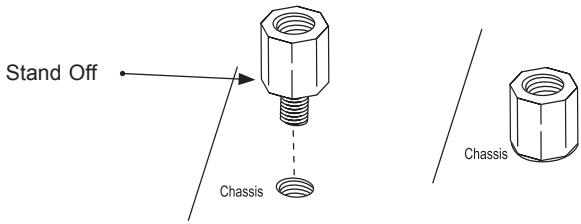
Installation Instructions

1 Install the I/O shield into the chassis.



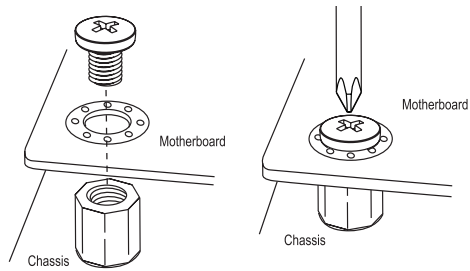
2 Locate the mounting holes on the motherboard. Refer to the layout on the previous page for mounting hole locations.

3 Locate the matching mounting holes on the chassis. Install standoffs in the chassis as needed. Align the mounting holes on the motherboard against the mounting holes on the chassis.



4 Install the motherboard into the chassis carefully to avoid damage to motherboard components.

5 Insert a Pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis, using the Philips screwdriver.



6 Repeat Step 4 to insert #6 screws into all mounting holes.

7 Make sure that the motherboard is securely placed in the chassis.

2-3 Processor and Heatsink Installation

Warning: When handling the processor package, avoid placing direct pressure on the label area of the fan.

Notes:

1. Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU LGA 775 socket before you install the CPU heatsink.

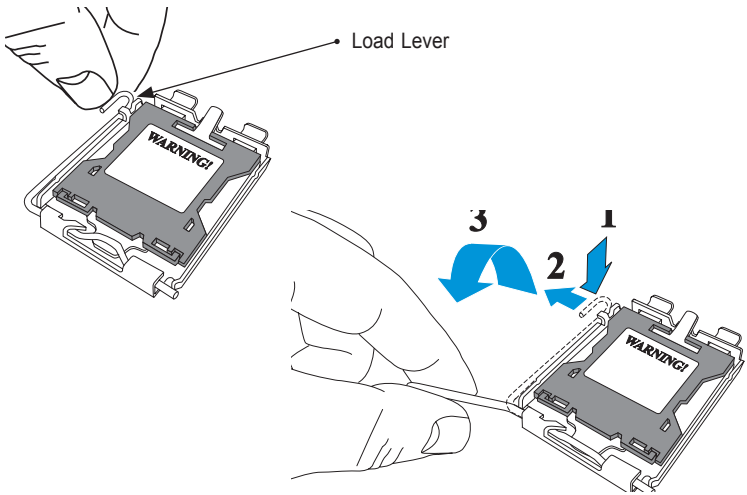
2. The boxed Intel LGA 775 processor contains the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel-certified multi-directional heatsink and fan.

3. Make sure to install the motherboard into the chassis before you install the CPU heatsink and fan.

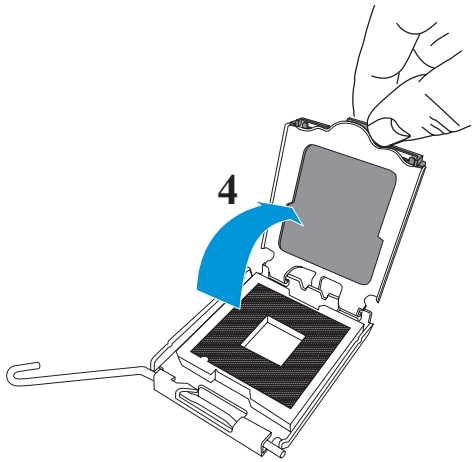
4. When receiving a motherboard without a processor pre-installed, make sure that the CPU plastic cap is in place and none of the CPU pins are bent; otherwise, contact the retailer immediately. Refer to the MB Features Section for more details on CPU support.

Installing the LGA775 Processor

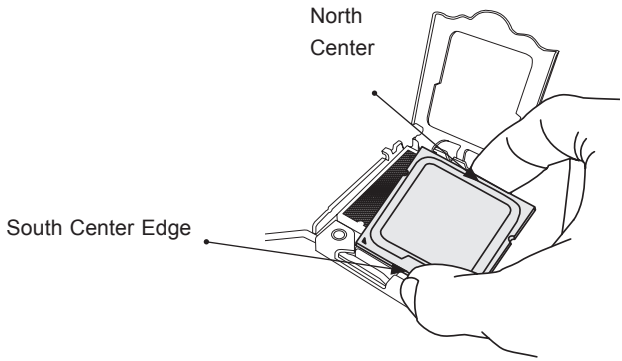
1 Press the load lever to release the load plate, which covers the CPU socket, from its locking position.



2 Gently lift the load lever to open the load plate.



3 Use your thumb and your index finger to hold the CPU at the top center edge and the bottom center edge of the CPU.



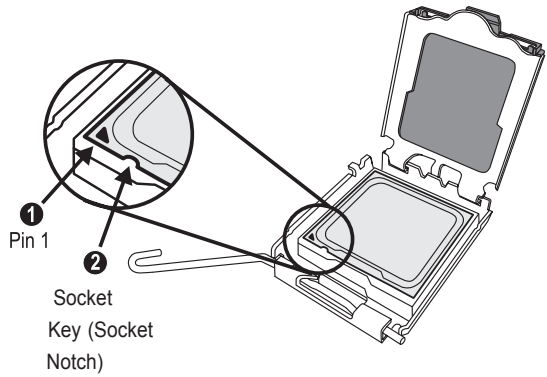
4 Align CPU Pin1 (the CPU corner marked with a triangle) against the socket corner that is marked with a triangle cutout.

Align the CPU key that is the semi-circle cutout below a golden dot against the socket key, the Notch on the same side of the triangle cutout on the socket.

Once aligned, carefully lower the CPU straight down to the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.

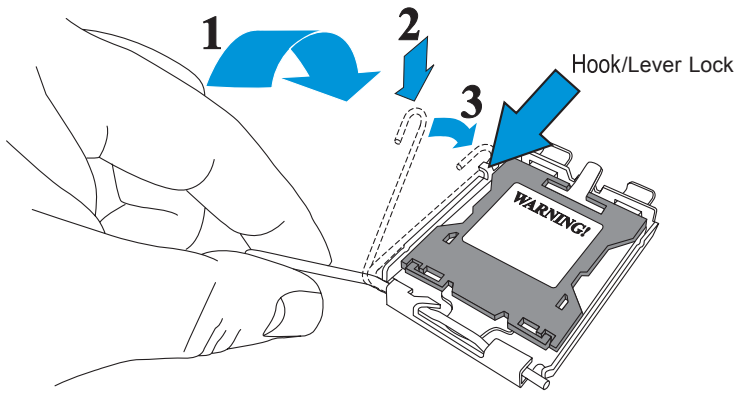
Do not rub the CPU against the surface or against any pins of the socket to avoid damage to the CPU or the socket.)

With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.



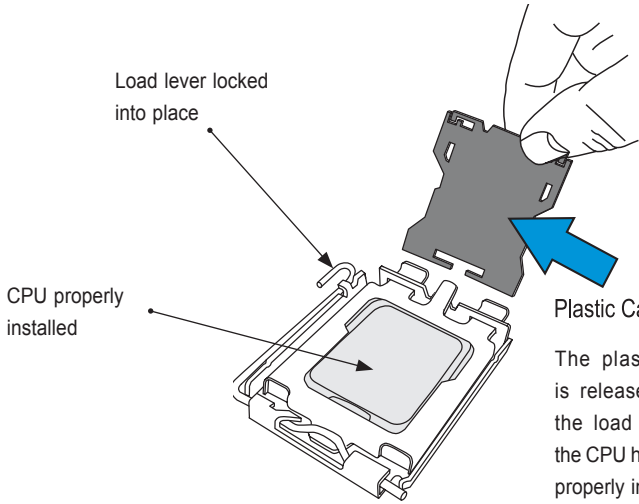
5

Use your thumb to gently push the load lever down to the lever lock.



Warning: The CPU will only seat inside the socket in one direction. Make sure it is properly inserted before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

6 If the CPU is properly installed into the socket, the plastic PnP cap will be automatically released from the load plate when the load lever is pushed in the lever lock. Remove the PnP cap from the motherboard.


Load lever locked into place
CPU properly installed
Plastic Cap
The plastic cap is released from the load plate if the CPU has been properly installed.

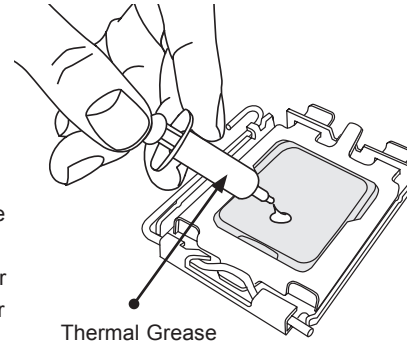
Important: Please save the plastic PnP cap. The motherboard must be shipped with the PnP cap properly installed to protect the CPU socket pins. Shipment without the PnP cap properly installed will cause damage to the socket pins.

Installing an Active Fan CPU Heatsink

Note: Heatsink and hardware are not supplied with the motherboard.

1 Locate the CPU Fan power connector on the motherboard. (Refer to the layout on the right for the CPU Fan location.)

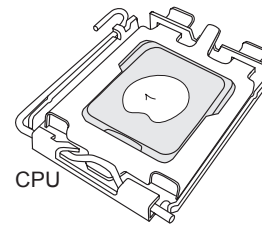
2 Position the heatsink so that the heatsink fan wires are closest to the CPU fan power connector and are not interfered with other components.

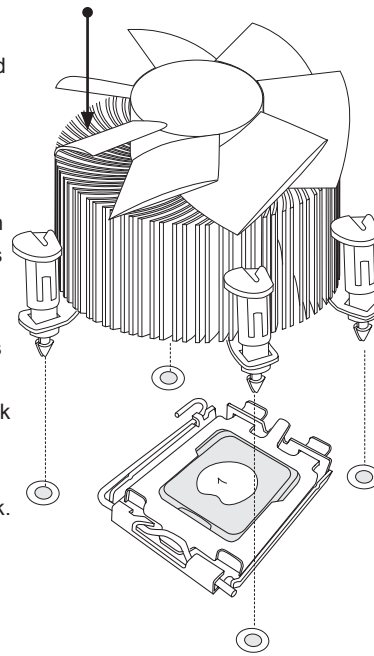


3 Inspect the CPU Fan wires to make sure that the wires are routed through the bottom of the heatsink.

4 Remove the thin layer of the protective film from the copper core of the heatsink.

(Warning: CPU may overheat if the protective film is not removed from the heatsink.)



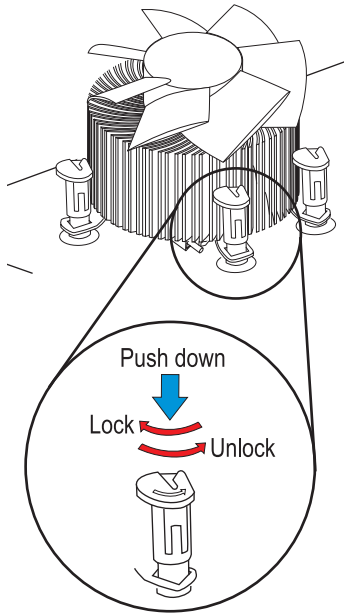


5 Apply the proper amount of thermal grease on the CPU. (Note: if your heatsink came with a thermal pad, please ignore this step.)

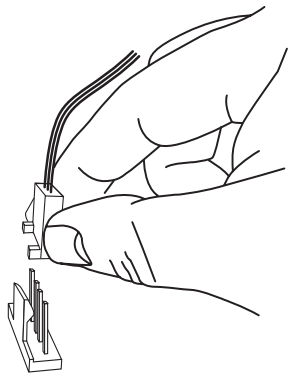
6 If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.

7 Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. (Note: Make sure to orient each fastener so that the narrow end of the groove is pointing outward.)

8 Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.



9 Once all four fasteners are securely inserted into the mounting holes and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.



Removing the Heatsink

Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to remove the heatsink, please follow the instructions below to uninstall the heatsink and prevent damage to the CPU or other components.

Active Heatsink Removal

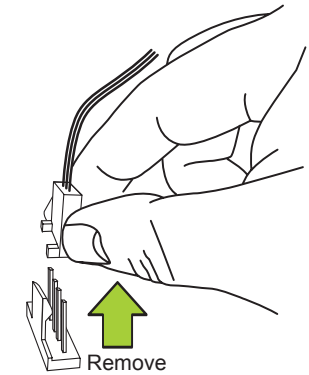
1 Unplug the power cord from the power supply.

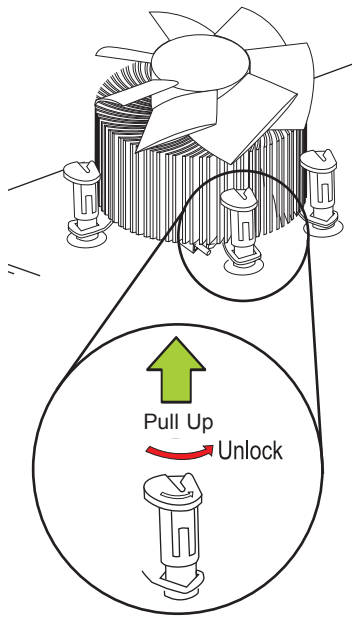
2 Disconnect the heatsink fan wires from the CPU fan header.

3 Use your finger tips to gently press on the fastener cap and turn it counter-clockwise to make a 1/4 (90^0) turn, and then pull the fastener upward to loosen it.

4 Repeat Step 3 to loosen all fasteners from the mounting holes.

5 With all fasteners loosened, remove the heatsink from the CPU.





Installing a Passive CPU Heatsink

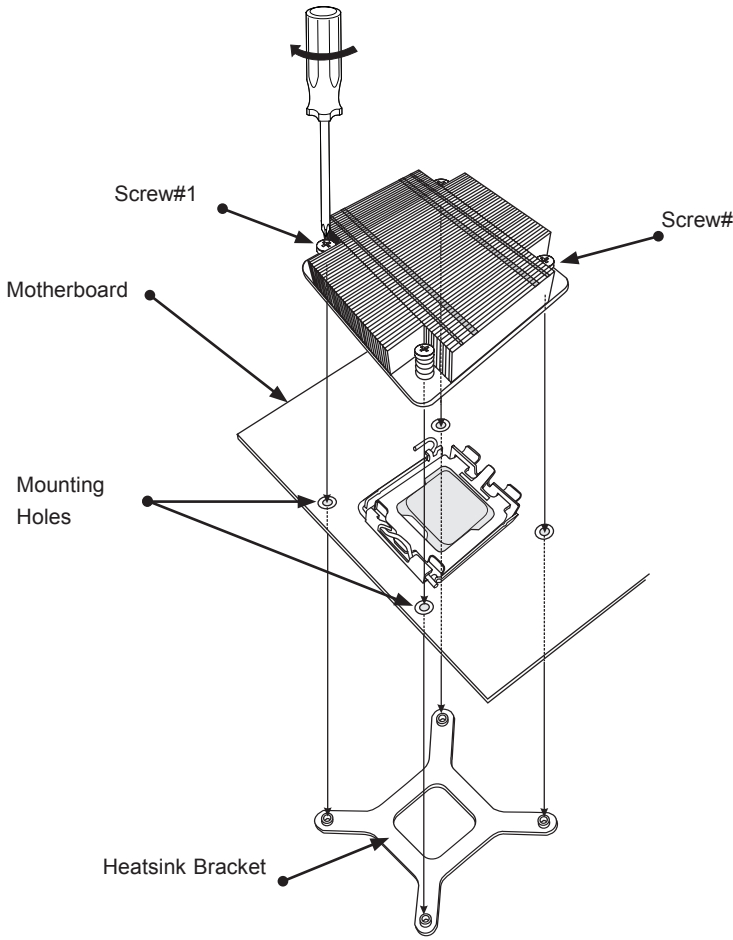
1. Do not apply any thermal grease to the heatsink or the CPU die -- the required amount has already been applied.

2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the Motherboard's and the Heatsink Bracket underneath.

3. Screw in two diagonal screws (i.e., the #1 and the #2 screws) until just snug (do not over-tighten the screws to avoid possible damage to the CPU.)

4. Finish the installation by fully tightening all four screws.

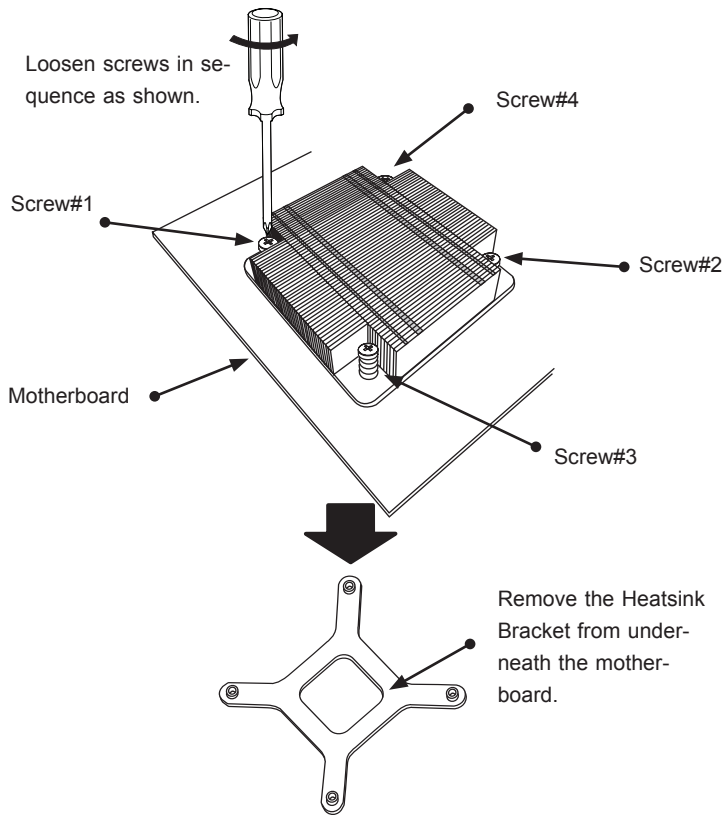
Note: Heatsink and hardware are not supplied with the motherboard.



Removing the Heatsink

Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to prevent damage done to the CPU or the CPU socket.

1. Unscrew the heatsink screws from the motherboard in the sequence as shown in the illustration below.
2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!!)
3. Once the CPU is loosened, remove the heatsink from the CPU socket.
4. Clean the surface of the CPU and the heatsink, removing the used thermal grease. Reapply the proper amount of thermal grease on the surface before re-installing the CPU and the heatsink.



2-4 Installing DDR3 Memory

Note: Check the Supermicro web site for recommended memory modules.

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

DIMM Installation

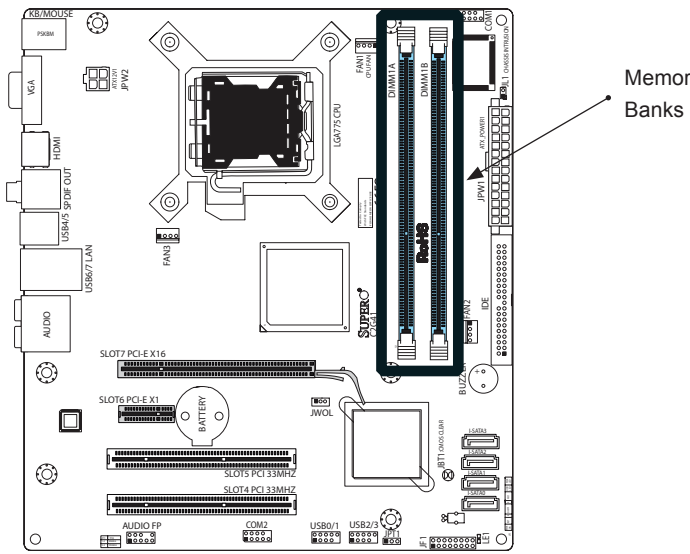
1. Insert the desired number of DIMMs into the memory slots, starting with DIMM1A. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to prevent incorrect DIMM module installation.

2. Gently press down on the DIMM module until it snaps into place in the slot. Repeat step 1 to install DIMM1B if needed.

Memory Support

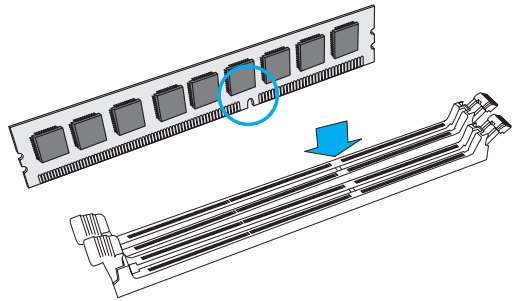
The C2G41 supports up to 4GB of Unbuffered Non-ECC DDR3 (1066/800 MHz) in 2 DIMM slots. Populating these DIMM modules with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance.

Installing and Removing DIMMs

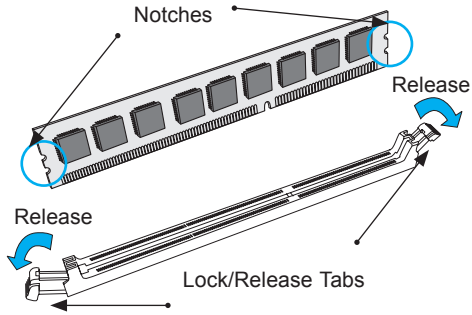


The DDR3 Slot

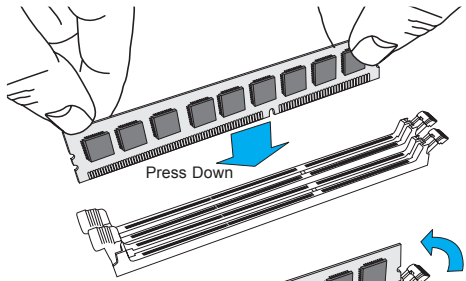
1 Position the DIMM module's bottom key so it aligns with the receptive point on the slot.



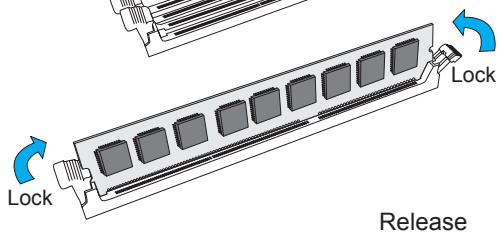
2 Push the Lock/Release tabs to their Release positions. Make sure that the DIMM module's side notches align with the slot's Lock/Release tabs as it is pressed in.



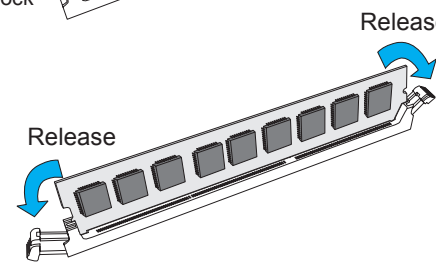
3 Insert the DIMM module vertically and press down until the module snaps into place.



4 When the module is properlly inserted, the Lock/Release tabs will automatically secure the DIMM module, locking it into place.



5 **To Remove:** Use your thumbs to gently push the Lock/Release tabs near both ends of the module. This should release it from the slot. Pull the DIMM module upwards.



Note: Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional.

For Microsoft Windows users: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

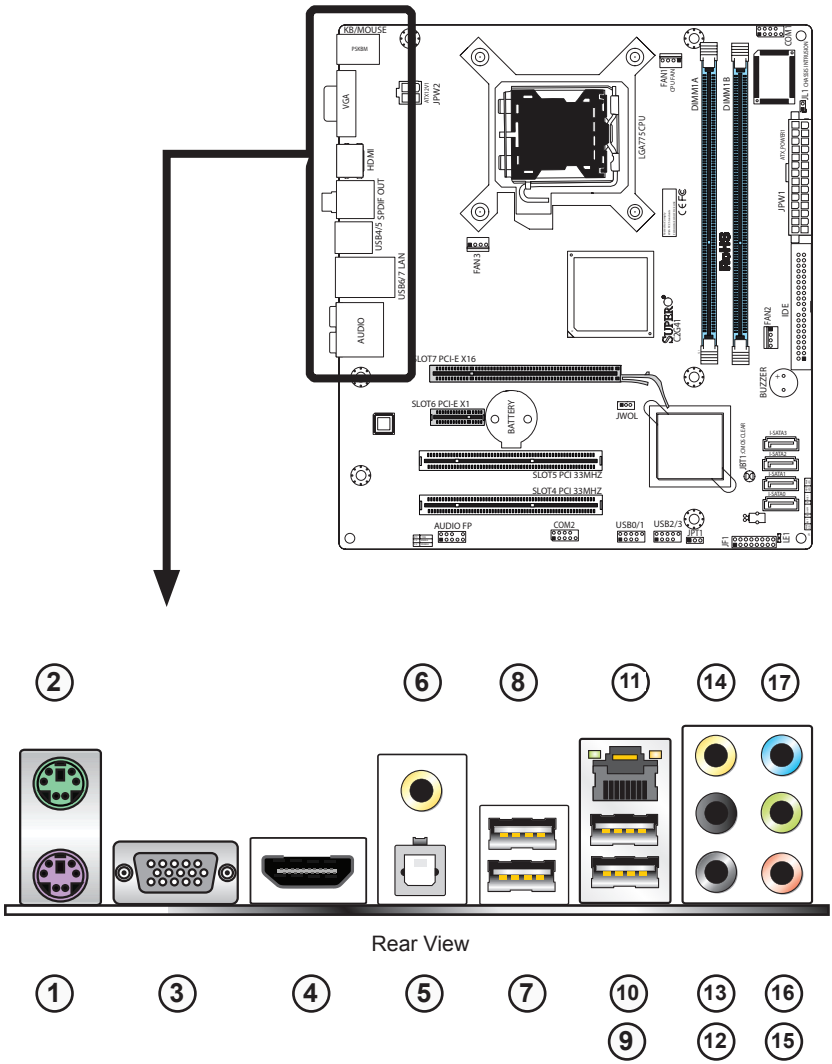
Possible System Memory Allocation & Availability

System Device	Size	Physical Memory Remaining (-Available) (4 GB Total System Memory)
Firmware Hub flash memory (System BIOS)	1 MB	3.99
Local APIC	4 KB	3.99
Area Reserved for the chipset	2 MB	3.99
I/O APIC (4 Kbytes)	4 KB	3.99
PCI Enumeration Area 1	256 MB	3.76
PCI Express (256 MB)	256 MB	3.51
PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary-	512 MB	3.01
VGA Memory	16 MB	2.85
TSEG	1 MB	2.84
Memory available to OS and other applications		2.84

2-5 Control Panel Connectors/IO Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure below for the colors and locations of the various I/O ports.

1. Back Panel Connectors/IO Ports



Rear View

Back Panel I/O Port Location

Back Panel Connectors - Descriptions

1. **Keyboard (Purple)** - this port is for a keyboard with a PS/2-type connector.
2. **PS/2 Mouse (Green)** - attach a PS/2-type pointing device to this connector, such as a mouse or a trackball.
3. **VGA** - this is the default VGA display connector.
4. **HDMI** - for High Definition monitors with an HDMI interface.
5. **S/PDIF (Optical)** - connect to receivers/speakers that has a S/PDIF-compatible optical audio input.
6. **S/PDIF (Coaxial)** - attach to a device with a Coaxial digitial audio input.

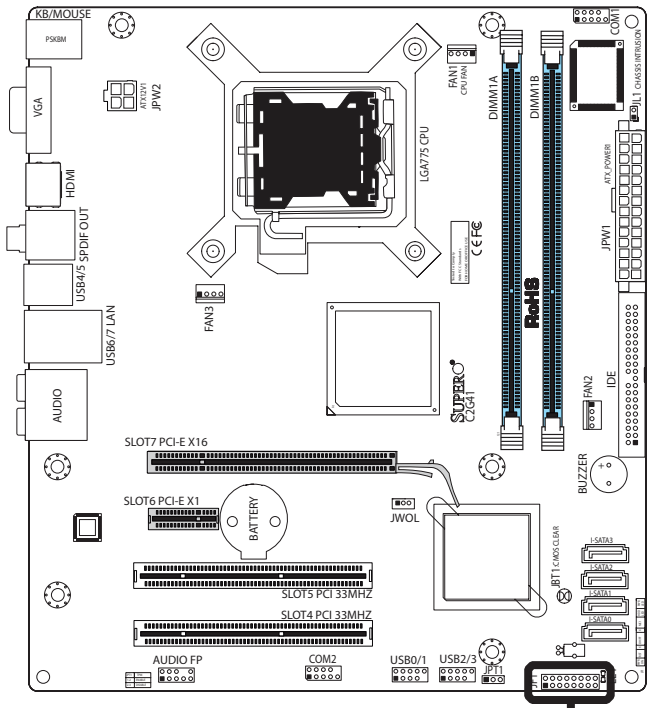
USB Ports - attach USB devices to these ports as needed (such as mice, memory card readers, etc).

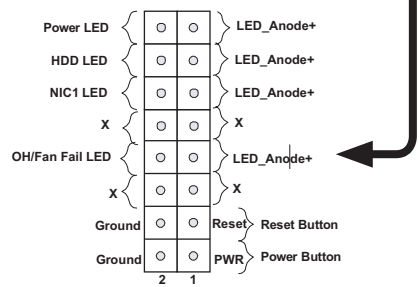
7. USB Port 5
8. USB Port 4
9. USB Port 6
10. USB Port 7

11. **Gigabit LAN** - connect to a network using an RJ45-type cable/connector.
12. **Side Surround (Grey)** - connect to side surround speakers/channels (left and right).
13. **Back Surround (Black)** - connect to rear surround speakers/channels (left and right).
14. **CEN/LFE (Orange)** - connect to the center speaker/channel and LFE (Low Frequency Effects) speaker, usually a subwoofer.
15. **Microphone-In (Pink)** - connect to a microphone.
16. **Front (Green)** - connect to the front surround speakers/channels (left and right).
17. **Line-In (Blue)** - attach to audio input devices such as disc players, MP3 players, etc.

2. Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Super Micro server chassis. See Figure below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.





JF1 Header Pins

3. Front Control Panel Pin Definitions

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

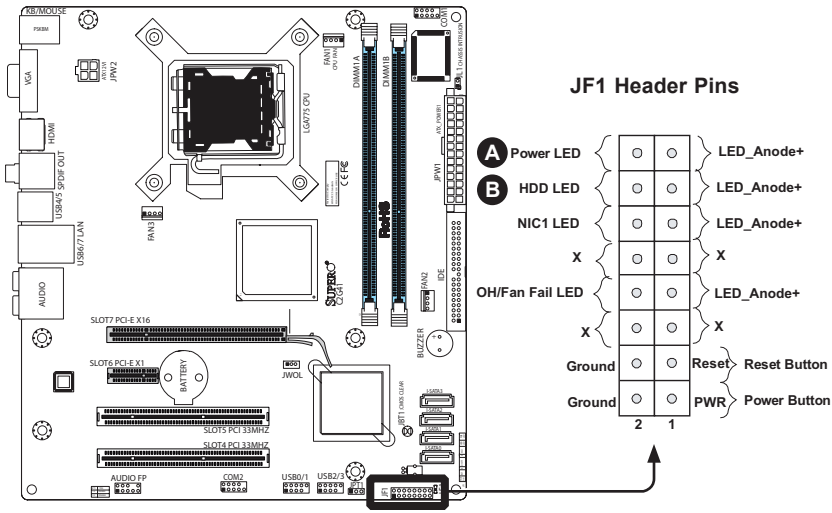
Power LED Pin Definitions (JF1)	
Pin#	Definition
15	LED_Anode+
16	PWR LED Signal

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a hard drive LED cable here to display disk activity. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	LED_Anode+
14	HD Active

A PWR LED connector
B HDD LED connector



NIC1 Indicator

The NIC (Network Interface Controller) LED connection for the GLAN port is located on pins 11 and 12 of JF1. Attach the NIC LED cables to display network activity. Refer to the table on the right for pin definitions.

GLAN 1 LED Pin Definitions (JF1)	
Pin#	Definition
11	LED_Anode+
12	NIC1 LED Signal

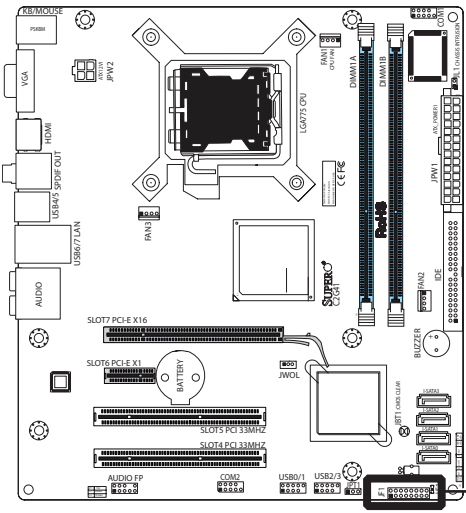
Overheat/Fan Fail LED (OH)

Connect an LED to the OH/Fan Fail connection on pins 7 and 8 of JF1 to provide advanced warnings of chassis overheating or fan failure. Refer to the table on the right for pin definitions.

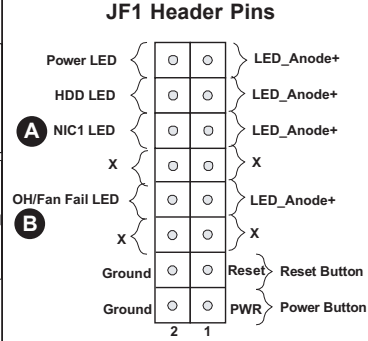
OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	LED_Anode+
8	OH/Fan Fail LED Signal

OH/Fan Fail Indicator Status	
State	Definition
Off	Normal
On	Overheat
Flashing	Fan Fail

A NIC1 LED
B OH/Fan Fail LED



JF1 Header Pins



Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

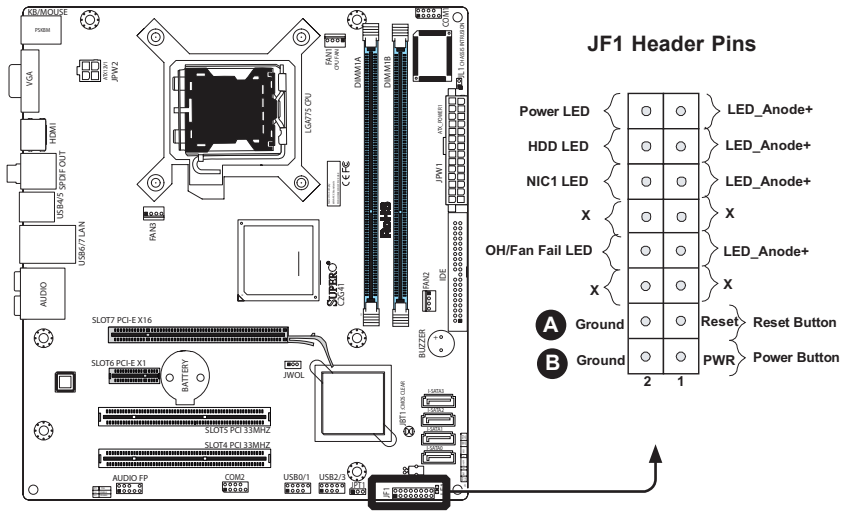
Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power when set to suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	Ground

Note: Do not close or short Pins 1 & 2 since this will cause the system to continuously reboot.

A Reset
B PWR Button



2-6 Connecting Cables

ATX/Auxiliary Power Connectors

A 24-pin main power connector is located at JPW1. This power connector meets the SSI EPS 12V specification. See the table on the right for pin definitions.

ATX Power 24-pin Connector Pin Definitions

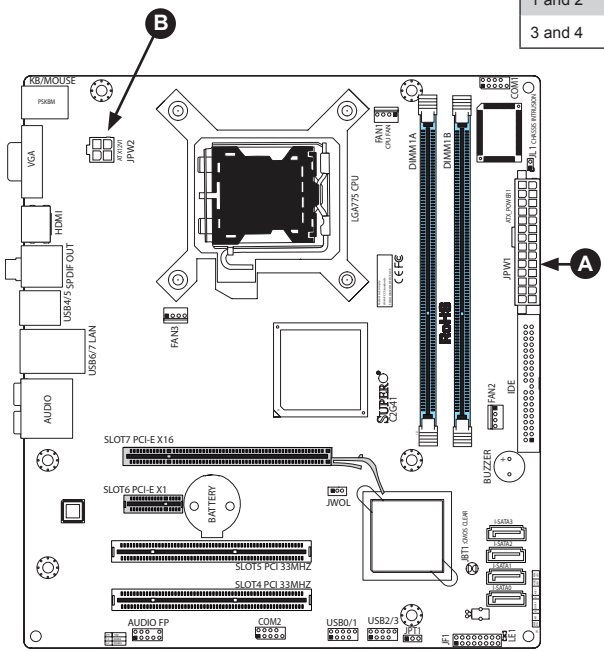
Pin#	Definition	Pin #	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

4-pin CPU Power Connector

A 4-pin 12V power connector is located at JPW2 on the motherboard. This power connector also meets the SSI EPS 12V specification, and is required to ensure adequate power to the processor. See the table on the right for pin definitions.

12V 4-pin Power Connector Pin Definitions

Pins	Definition
1 and 2	Ground
3 and 2	+12V



Universal Serial Bus (USB)

There are 8 USB 2.0 (Universal Serial Bus) ports/headers on the motherboard. Four of them are Back Panel USB ports: USB 4/5 and USB 6/7. The other four are headers that can be used for front panel connections: USB 0/1, USB 2/3. See the tables on the right for pin definitions.

Front Panel USB (6/7/8/9) and Front-Accessible Onboard USB (10) Connections

Pin #	Definition	Pin #	Definition
1	+5V	1	+5V
2	PO-	2	PO-
3	PO+	3	PO+
4	Ground	4	Ground
5	Key	5	No connection

Chassis Intrusion Pin Definitions (JL1)

Pin#	Definition
1	Intrusion Input
2	Ground

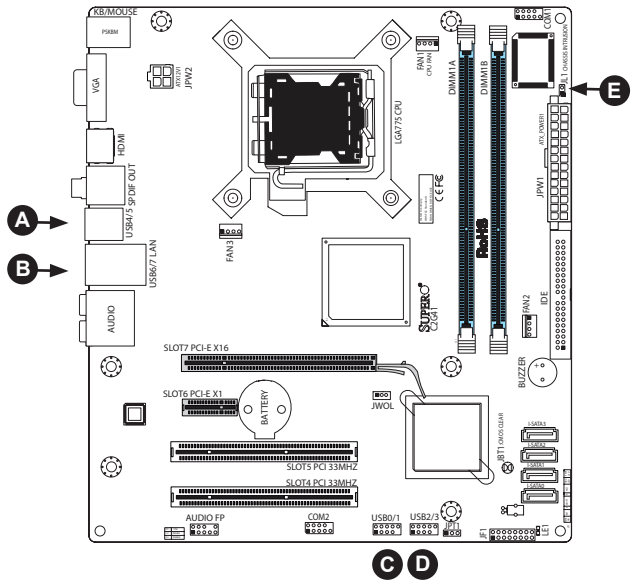
Back Panel USB (0-5)

Pin#	Definitions
1	+5V
2	PO-
3	PO+
4	Ground
5	N/A

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when it is opened.

- **A** Back panel USB Ports 4/5
- **B** Back panel USB Ports 6/7
- **C** Front Panel USB 0/1
- **D** Front Panel USB 2/3
- **E** Chassis Intrusion



Fan Headers

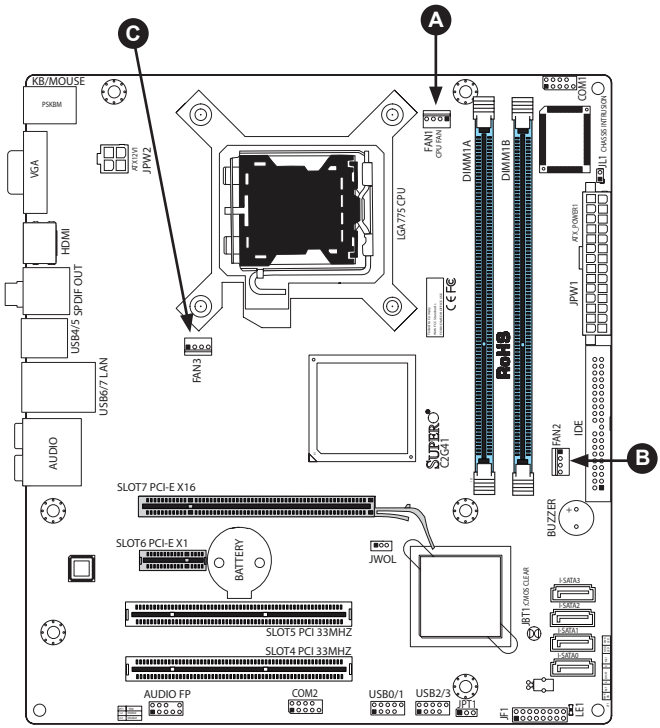
The C2G41 has three chassis fan headers (Fan 1 to Fan 3). Fan 1 is the CPU Fan. Fan 2 to Fan 3 are system/chassis fans.

Note: *Pins 1-3 of a 4-pin fan headers are backward compatible with the traditional 3-pin fans.) See the table on the right for pin definitions. *The onboard fan speeds are controlled by Thermal Management via BIOS Hardware Monitoring in the Advanced Setting. (Default: Disabled. When using Thermal Management settings, please use all 3-pin fans or all 4-pin fans on the motherboard.)*

Fan Header Pin Definitions (Fan1-3)	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWR Modulation

Overheat LED Pin Definitions	
Pin#	Definition
1	5vDC
2	OH Active

A Fan 1 (CPU Fan)
B Fan 2
C Fan 3



ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located at J8. See the table on the right for pin definitions. (The mouse port is above the keyboard port. See the table on the right for pin definitions.)

PS/2 Keyboard and Mouse Port Pin Definitions

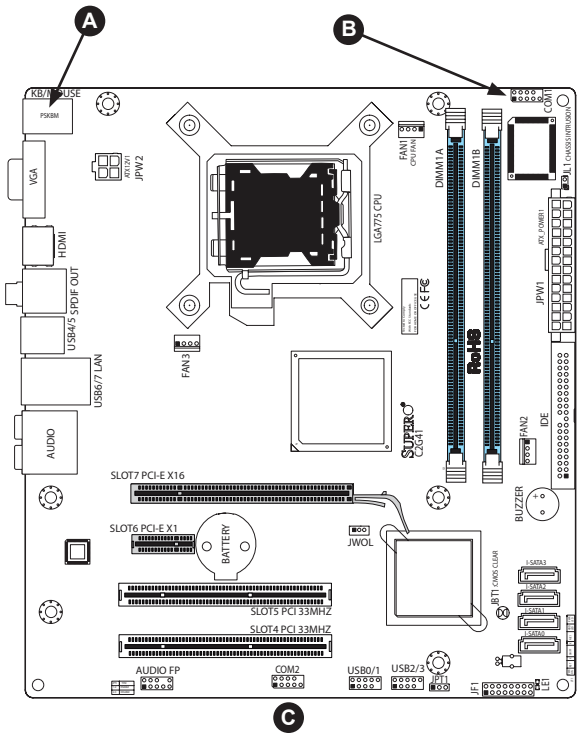
Pin#	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Serial Ports

COM 1 and COM 2 are header connectors on the motherboard. See the table on the right for pin definitions.

Serial Port Pin Definitions

Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	NC



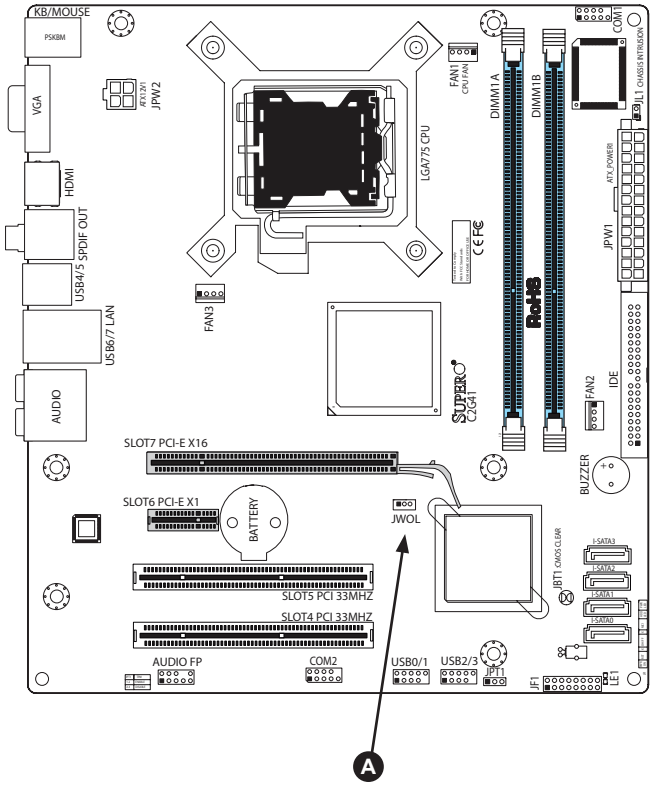
A Keyboard/Mouse
B COM1
C COM2

Wake-On-LAN

The Wake-On-LAN header is located at JWOL on the motherboard. See the table on the right for pin definitions. (You must also have a LAN card with a Wake-On-LAN connector and cable to use this feature.)

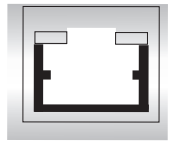
Wake-On-LAN Pin Definitions (JWOL)	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

A WOL



GLAN 1 (Gigabit Ethernet Port)

A Gigabit Ethernet port is located on the IO backplane. This port accepts RJ45 type cables.

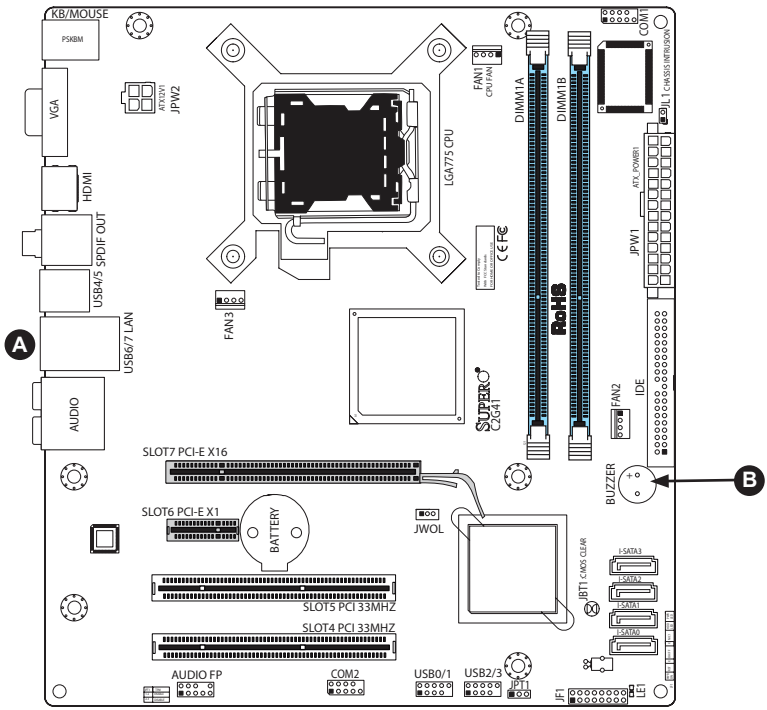


GLAN1

Speaker

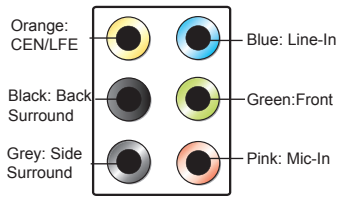
A Speaker/Buzzer is located on the motherboard next to the IDE connector.

A GLAN1
B Speaker/Buzzer

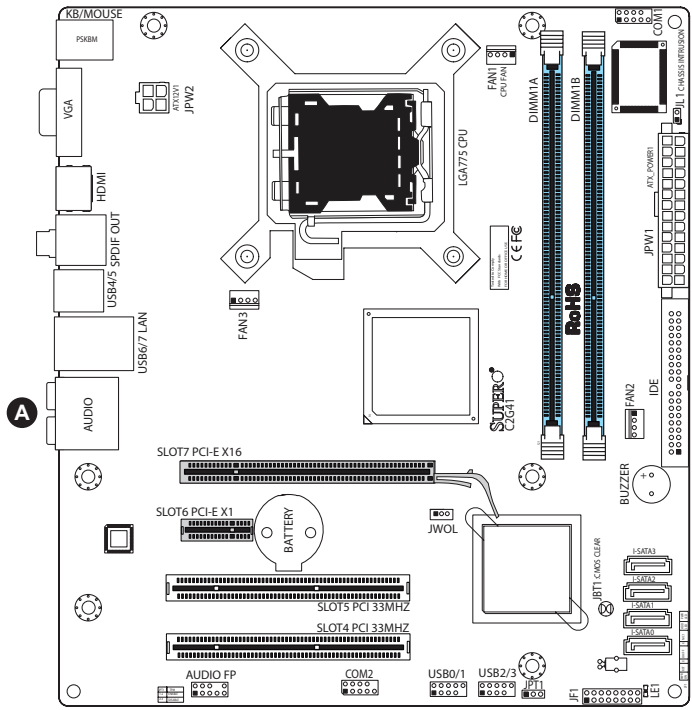


High Definition Audio (HDA)

The C2G41 features a 7.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels, simultaneously supporting 7.1 sound playback and two channels of independent stereo sound output (multiple streaming) through the front panel stereo out for front L&R, rear L&R, center and subwoofer speakers. This feature is activated with the Advanced software in the CD-ROM that came with your motherboard. Sound is then output through the Line In, Line Out and MIC jacks (See at the picture at right).



A HD Audio

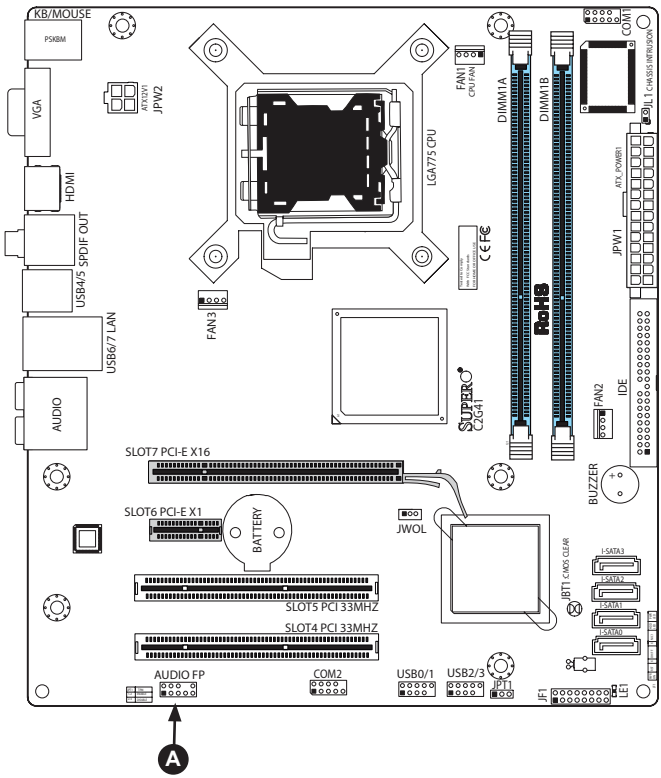


Front Panel Audio Control

When front panel headphones are plugged in, the back panel audio output is disabled. This is done through the FP Audio header (AUDIO FP). If the front panel interface card is not connected to the front panel audio header, jumpers should be installed on the header pin pairs: 1-2, 5-6, and 9-10. If these jumpers are not installed, the back panel line out connector will be disabled and microphone input Pin 1 will be left floating, which can lead to excessive back panel microphone noise and cross talk. See the table below for pin definitions.

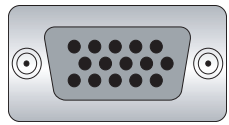
High Definition Fron Panel Audio	
Pin#	Signal
1	MC_L
2	AUD_GND
3	MC_R
4	FP_Audio-Detect
5	Line_2_R
6	SENSE1_RETURN
7	AUD_GND
8	Key
9	Line_2_L
10	SENSE2_RETURN

A Front Panel Audio



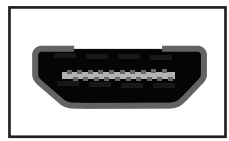
VGA Connector

A VGA connector is located next to the USB ports on the IO backplane. Refer to the board layout below for the location.

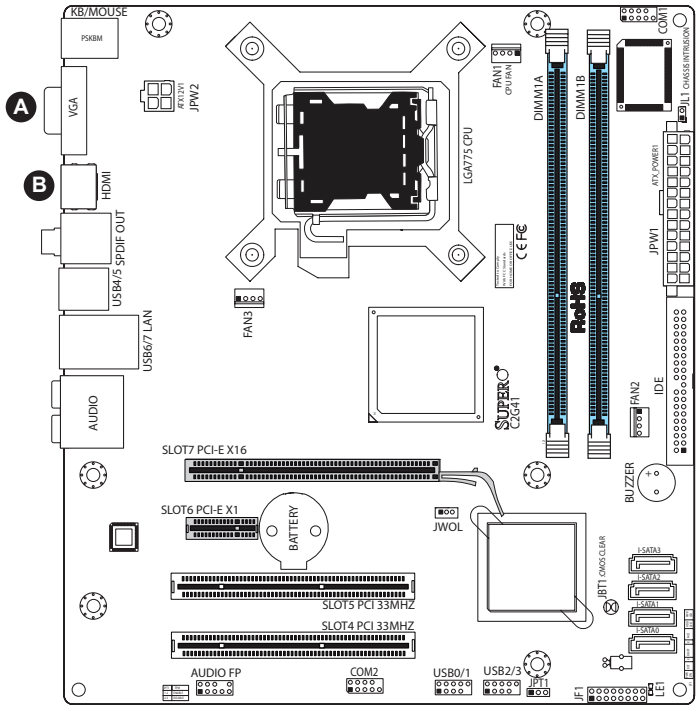


HDMI Port

The HDMI (High-Definition Multimedia Interface) Port is located next to the USB ports on the I/O backplane, and just below the VGA Connector. Refer to the board layout below for the location. This connector is used to display both high definition video and digital sound through an HDMI-capable display, using just a single (HDMI) cable.



A VGA
B HDMI

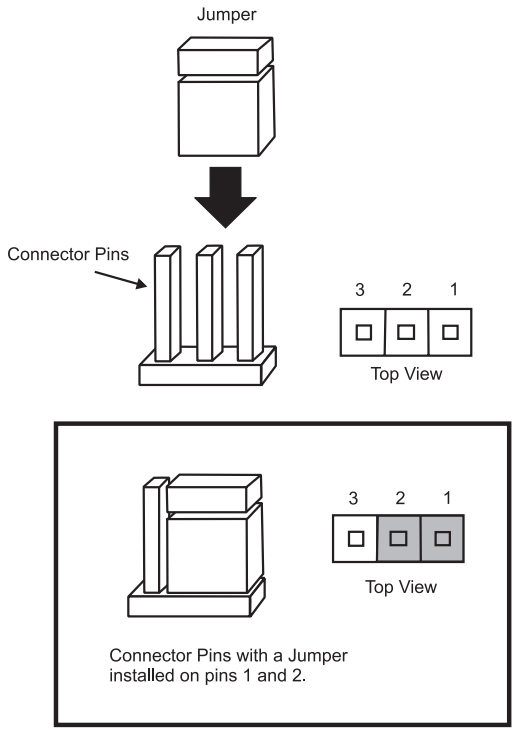


2-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Note: *On two pin jumpers, "Closed" means the jumper is on and "Open"* means the jumper is off the pins.



TPM Support Enable

JPT1 allows the user to enable TPM (Trusted Platform Module) support to enhance data integrity and system security. See the table on the right for jumper settings. The default setting is

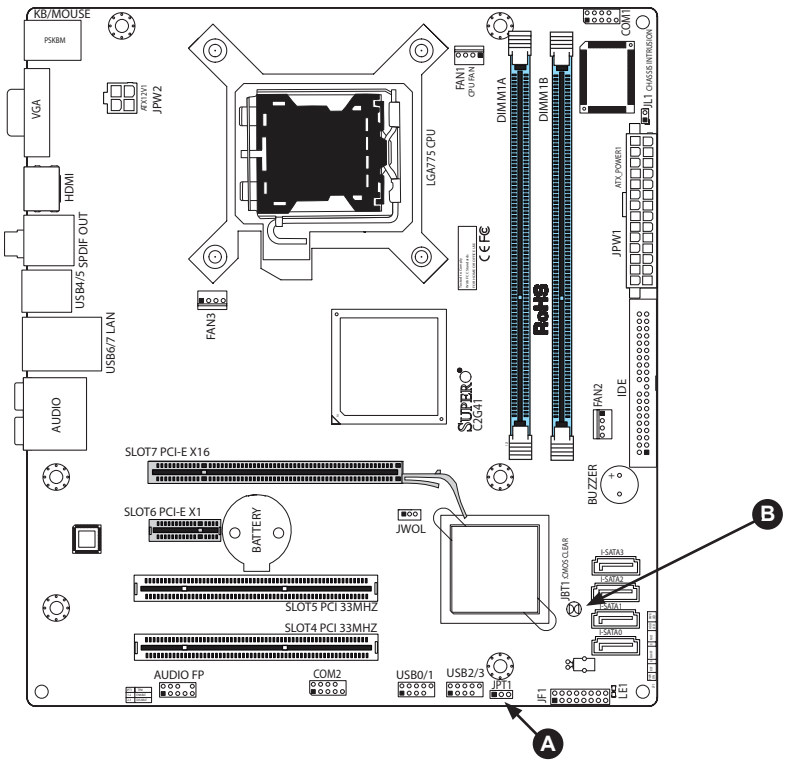
TPM Support Enable Jumper Settings	
Jumper Setting	Definition
1-2	Enabled
2-3	Disabled

Clear CMOS

JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent the accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS.

Note: For an ATX power supply, you must completely shut down the system, remove the AC power cord and then close pins 1 and 2 to clear CMOS.

A TPM enable
B Clear CMOS



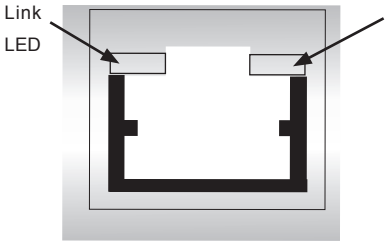
2-8 Onboard Indicators

GLAN LEDs

There is one Gigabit-LAN port. This Gigabit Ethernet LAN port has two LEDs. The yellow LED indicates activity, while the Link LED may be green, amber or off to indicate the speed of the connection. See the tables at right for more information.

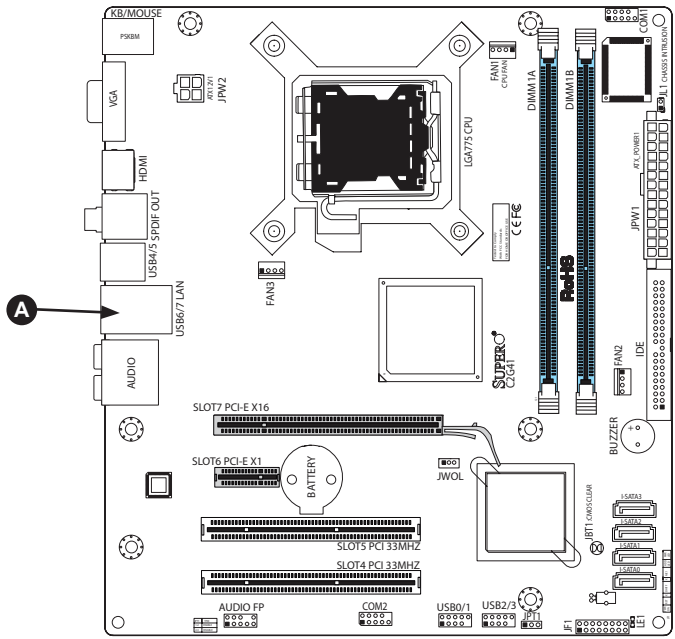
GLAN Activity Indicator		
Color	Status	Definition
Yellow	Flashing	Active

GLAN Link Indicator	
LED Color	Definition
Off	No Connection or 10 Mbps
Green (On)	100 Mbps
Amber (On)	1 Gbps



Rear View
(When viewing from the rear side of the chassis.)

A GLAN Port1 LEDs

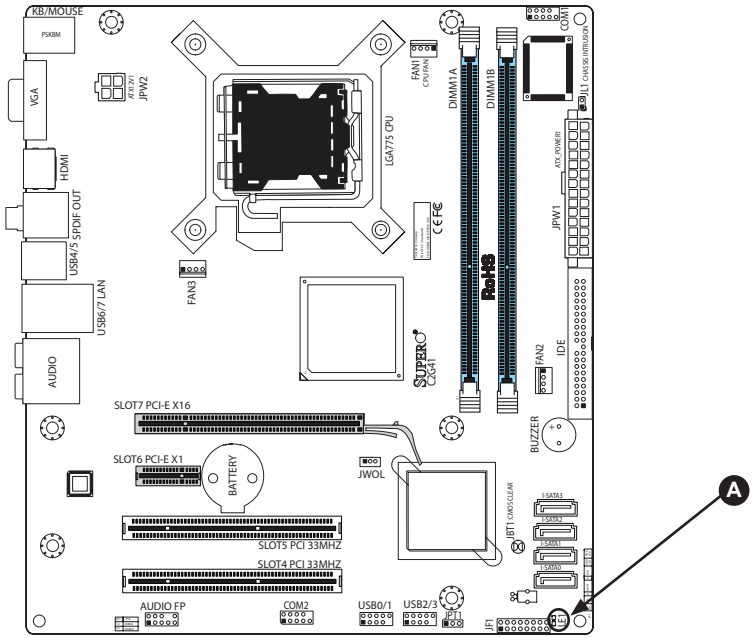


Onboard Power LED (LE1)

The Onboard 3.3V Standby Power LED is located at LE1 on the motherboard. When LE1 is off, the system is off. When the green light is on, the system is on. When the LED is on, the power is on. Unplug the power cable before removing or installing components. See the layout below for the LED location.

Onboard PWR LED Indicator (LE1)	
LED Color	Definition
Off	System Off
On	Standby Power On
Green	System On

A Power LED



2-9 Disk Drive Connections

Note the following when connecting the hard disk drive cables:

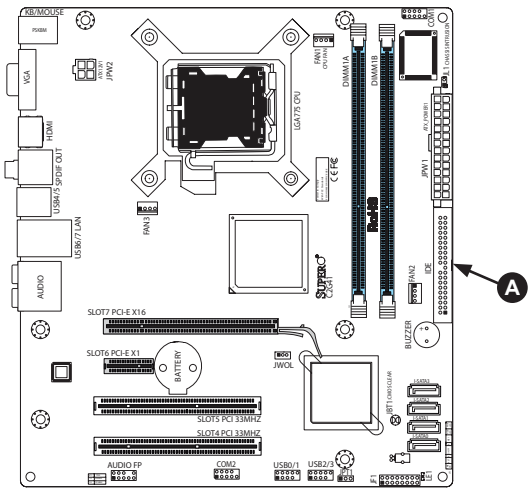
- A red mark on a wire typically designates the location of pin 1.

IDE Disk Drive Connector

There is one IDE Disk Drive Connector on the C2G41 that can support up to two IDE devices (Please refer to the jumper section for more details.) See the table on the right for pin definitions.

IDE Drive Connectors Pin Definitions

Pin#	Definition	Pin #	Definition
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	Key
21	DRQ3	22	Ground
23	I/O Write	24	Ground
25	I/O Read	26	Ground
27	IOCHRDY	28	BALE
29	DACK3	30	Ground
31	IRQ14	32	IOCS16
33	Addr1	34	Ground
35	Addr0	36	Addr2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground



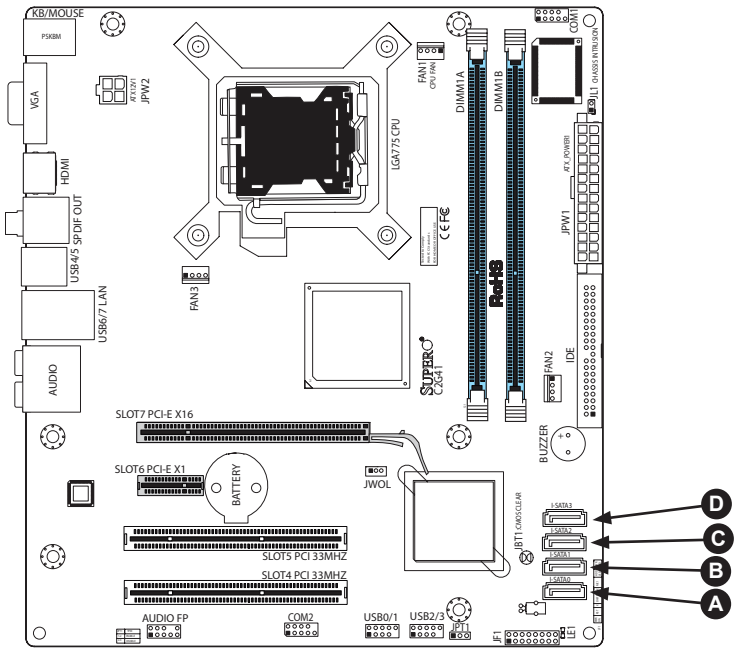
A IDE

SATA Disk Drive Connectors

Four Serial ATA (SATA) disk drive connectors (I-SATA 0~3) are located on the motherboard to provide serial link connections. Serial Link connections provide faster data transmission than those of the traditional Parallel ATA. These four SATA connectors are supported by the Intel ICH7 Chip (South Bridge). See the table on the right for pin definitions.

SATA Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

A I-SATA0
B I-SATA1
C I-SATA2
D I-SATA3



Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any hardware components.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install a CPU and heatsink (making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.
5. Use the correct type of onboard CMOS battery as specified by the Manufacturer. Do not install the CMOS battery upside down to avoid possible explosion.
6. Make sure the 4-pin 12v power connector at JPW2 is connected to your power supply.

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Verify that all jumpers are set to their default positions.
3. Check that the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all the add-on cards and cables.

2. Use the speaker to determine if any beep codes exist. Refer to Appendix A for details on beep codes.

Note: *If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.*

Memory Errors

1. Make sure that the DIMM modules are properly and fully installed.
2. You should be using unbuffered DDR3 memory (see the next page). Also, it is recommended that you use the same memory speed for all DIMMs in the system. See Section 2-4 for memory limitations.
3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
4. Check the power supply voltage 115V/230V switch.

Losing the System's Setup Configuration

1. Make sure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, Super Micro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/support/faqs/) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our web site at (http://www.supermicro.com/support/bios/).

Note: *Not all BIOS can be flashed; it depends on the modifications to the boot block code.*

3. If you still cannot resolve the problem, include the following information when contacting Super Micro for technical support:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration

  An example of a Technical Support form is on our web site at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at:(408) 503-8000, option 2, or by fax at (408)503-8019.

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The C2G41 supports **unbuffered,** non-ECC DDR3 1066/800 MHz memory modules. See Section 2-4 for details on installing memory.

Question: Why does Microsoft Windows XP (SP2) and Windows Vista show less memory than what is physically installed?

Answer: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS (.rom) file to your computer. Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You may choose the zip file or the .exe file. If you choose the zipped BIOS file, please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS .rom file from your bootable device or USB pen/thumb drive. Use the following format:

F:\> ami xxxxxxxx.rom <Enter>

Notes: Be sure to type in a space after "ami". Always use the file named “ami.bat” to update the BIOS.

When completed, your system will automatically reboot. If you choose the .exe file, please run the .exe file under Windows to create the BIOS flash floppy disk. Insert the floppy disk into the system you wish to flash the BIOS. Then, boot the system to the floppy disk. The BIOS utility will automatically flash the BIOS without any prompts. Please note that this process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

Warning: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure!

When the BIOS flashing screen is completed, the system will reboot and will show “Press F1 or F2”. At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F9> to load the default settings. Next, press <F10> to save and exit. The system will then reboot.

Note: The SPI BIOS chip installed on this motherboard is not removable. To repair or replace a damaged BIOS chip, please send your motherboard to RMA at Supermicro for service.

Question: I think my BIOS is corrupted. How can I recover my BIOS?

Answer: Please see Appendix D, BIOS Recovery for detailed instructions.

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for Windows and security and audio drivers.

Question: How do I utilize the onboard HD sound?

Answer: The onboard HD sound available on the C2G41 can be enabled with the audio driver software that was included in your motherboard package. When activated, sound will be routed through the jacks next to the LAN Port according to the audio connection descriptions listed on Chapter 2. You must also set the HD Audio setting to "Auto" in the Advanced Chipset section of the BIOS setup.

Question: I installed my microphone correctly but I can't record any sound. What should I do?

Answer: Go to <Start>, <Programs>, <Accessories>, <Entertainment> and then <Volume Control>. Under the Properties tab, scroll down the list of devices in the menu and check the box beside "Microphone".

Question: How do I connect the ATA100/66 cable to my IDE device(s)?

Answer: The 80-wire/40-pin high-density ATA100/66 IDE cable (not supplied with the motherboard) has two connectors to support two drives. This special cable must be used to take advantage of the speed the ATA100/66 technology offers. **Connect the blue connector to the onboard IDE header and the other connector(s) to your hard drive(s).** Consult the documentation that came with your disk drive for details on actual jumper locations and settings.

3-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 4

BIOS

4-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the C2G41. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

Starting BIOS Setup Utility

To enter the AMI BIOS Setup Utility screens, press the <Delete> key while the system is booting up.

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called hot keys. Most of the AMI BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc. (**Note**: Options printed in **Bold** are default settings.)

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

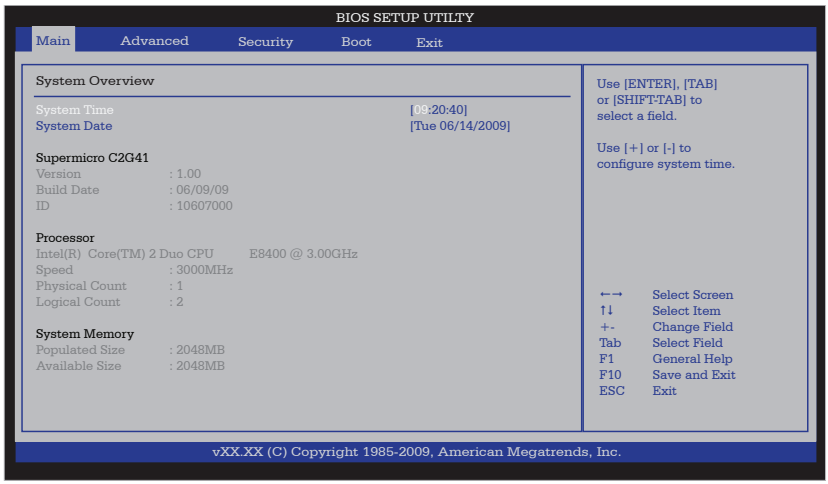
Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

Warning!! Do not shut down or reset the system while updating BIOS to prevent possible boot failure.

4-2 Main Setup

When you first enter the AMI BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.



System Overview: The following BIOS information will be displayed:

System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in

DAY/MM/DD/YY format. The time is entered in HH:MM:SS format.(**Note:** The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00.)

Supermicro C2G41

This feature displays the version numbers and ID of the motherboard.

Version

Build Date

ID

Processor

The AMI BIOS will automatically display the status of processors as shown below:

Processor

Speed

Physical Count

Logical Count

System Memory

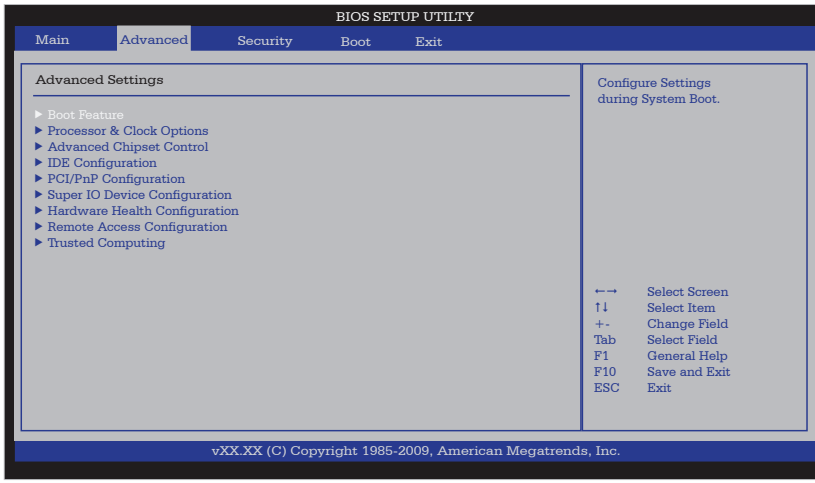
This option allows the AMI BIOS to display the status of memory modules installed in the system.

Populated Size

Available Size

4-3 Advanced Setup Configuration

Use the arrow keys to select Boot Setup and hit <Enter> to access the submenu items:



▶BOOT Feature

QuickBoot

If Enabled, this option will skip certain tests during POST to reduce the time needed for system boot. The options are **Enabled** and Disabled.

QuietBoot

This option allows the bootup screen options to be modified between POST messages or the OEM logo. Select Disabled to allow the computer system to display the POST messages. Select **Enabled** to allow the computer system to display the OEM logo.

Wait for 'F1' If Error

Select Enable to allow the system to wait for the user to press F1 when an error occurs. The options are **Enabled** and Disabled.

High Performance Event Timer

Select Enabled to activate the High Performance Event Timer (HPET) that produce periodic interrupts at a much higher frequency than a Real-time Clock (RTC) can in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in a CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are Enabled and **Disabled**.

▶ACPI Configuration

Use this feature to configure ACPI (Advanced Configuration and Power Interface) power management settings for your system.

ACPI Aware OS

Select **Yes** to enable ACPI support for the OS. Disable this feature if ACPI is not supported by your OS. The options are **Yes** and No.

Suspend Mode

This setting allows you to configure the ACPI (Advanced Configuration and Power Interface) state for your system when it is in the Supsend mode. The options are S1 (POS), S3 (STR) and **Auto**.

ACPI Version Feature

This feature allows the user to select ACPI Version for the system. The options are ACPI v1.0, **ACPI v2.0**, and ACPI v3.0.

Watch Dog Function

Select Enable to enable Watch Dog Timer and allow the system to reboot when it is inactive for more than 5 minutes. The options are Enabled and **Disabled**.

USB Device Wake Up

Select Enable to "wake-up" the system via a USB device when the system is in S3 (Standby) or S4 (Hibernate) State. The options are Enabled and **Disabled**.

PS/2 KB/MS Wake-Up

This feature is used to awaken the system from Standby mode by a PS/2 mouse or PS/2 keyboard. The options are Enabled and **Disabled**.

Restore on AC Power Loss

The feature allows the user to set the power state after a power outage. Select Power-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last state before a power loss. The options are Power-On, **Power-Off** and Last State.

Power Button Function

If set to **Instant Off**, the system will power off immediately as soon as the user pushes the power button. If set to 4 Seconds Override, the system will power off when the user pushes the power button for 4 seconds or longer. The options are **Instant Off** and 4 Seconds Override.

MPS Revision

This feature allows the user to specify the version of the Multi-Processor Specification (MPS) the motherboard is using. The options are **1.4** and 1.1.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at boot and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to **Disabled**, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices.

Standby Power in S5

This feature provides the option to select between standard power-saving mode and EuP control. Select Disabled to activate low power consumption under EuP requirements. Note: EuP (Expected Unserved Power) is a set of regulations adopted by the European Commission (EC) that imposes mandatory targets on low power consumption. Select **Enabled** to allow the system to go to power-saving mode while maintaining wake-up capabilities. The options are **Enabled** and Disabled.

▶Processor & Clock Options

Hardware Prefetcher (Available when supported by the OS and the CPU)

If set to Enabled, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache in the forward or backward manner to improve CPU performance. The options are Disabled and **Enabled**.

Adjacent Cache Line Prefetch (Available when supported by the OS and the CPU)

The CPU fetches the cache line for 64 bytes if this option is set to Disabled. The CPU fetches both cache lines for 128 bytes as comprised if **Enabled**.

Max CPUID Value Limit

This feature allows the user to set the maximum CPU ID value. Enable this function to boot the legacy operating systems that cannot support processors with extended CPUID functions. The options are Enabled and **Disabled** (for the Windows OS.).

Intel ® Virtualization Technology (Available when supported by the CPU)

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enabled**

and Disabled. **Note**: If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's web site for detailed information.

Execute Disable Bit (Available when supported by the OS and the CPU)

Set to **Enabled** to enable the Execute Disable Bit to allow the processor to classify areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from creating a flood of codes to overwhelm the processor or damage the system during an attack. The default is **Enabled**. (Refer to Intel and Microsoft Web Sites for more information.)

Core-Multi-Processing (Available when supported by the CPU)

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are Disabled and **Enabled**.

PECI

Select Enabled to activate the processor's Platform Environment Control Interface (PECI) feature. PECI uses the processor's Digital Thermal Sensor (DTS) to manage thermal conditions. Please see the item **CPU Overheat Alarm** under **Hardware Health Configuration** later in this section for more information. The options are **Enabled** and Disabled.

Intel® Speed Step™ Technology (Available when supported by the CPU)

Select Enabled to use the Enhanced Intel SpeedStep Technology and allow the system to automatically adjust the processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. The options are **Enabled** and Disable.

Intel® C-State Technology (Available when supported by the CPU)

Select Enabled to use the Intel C-State Technology and allow the BIOS to automatically set the system power to C2/C3/C4 State in an effort to reduce power consumption and heat dissipation. The options are **Enabled** and Disabled.

C1E Support

Select Enabled to use the "Enhanced Halt State" feature. C1E significantly reduces the CPU's power consumption by reducing the CPU's clock cycle and voltage during a "Halt State." The options are Disabled and **Enabled**.

▶Advanced Chipset Settings

The items included in the Advanced Settings submenu are listed below:

▶NorthBridge Configuration

This feature allows the user to configure the settings for the Intel 945GME NorthBridge chipset.

Memory Remap Feature

PCI memory resources will overlap with the total physical memory if 4GB of memory or above is installed on the motherboard. When this occurs, **Enable** this function to reallocate the overlapped physical memory to a location above the total physical memory to resolve the memory overlapping situation. The options are **Enabled** and Disabled.

PCI MMIO Allocation

Use this feature to assign the address for PCI Memory-mapped IO (MMIO) allocation. The Default setting is **4 GB to 3072 MB**.

DRAM Frequency

This feature allows the user to select the DRAM Frequency setting. The options are **Auto** (Auto-detect), 800 MHz and 1067 MHz

Configure DRAM Timing by SPD

Select Enable to allow the BIOS to read the SPD (Serial Presence Detect) chip which is built in the memory module in order to get the exact memory specifications. The options are **Enabled** and Disabled.

Memory Hole

Use the feature to allocate memory resource reserved for use of PCI devices. If set to 15 MB~16MB, the reserved memory will be placed in the location around 15 MB~16 MB. The options are **Disabled** and 15 MB~ 16 MB.

Boot Graphics Adapter Priority

Use this feature to select the graphics controller to be used as the primary boot device. The options are IGD, PCI/IGD, PCI/PEG, PEG/IGD, and **PEG/PCI**. See below for an explanation of the acronyms. For example, if PEG/PCI is selected, the system will look for a PCI-E graphics (PEG) adapter first, if none is found then it uses the PCI graphics (PCI) adapter to boot.

PEG - **P**CI-**E** **G**raphics adapter (optional add-on card)
PCI - **PCI** graphics adapter (optional add-on card)
IGD - **I**nternal **G**raphics **D**isplay (built-in)

IGD Graphics Mode Select

Use the feature to set the amount of system memory to be used by the Internal Graphics Devices. The options are Disabled, **Enabled 32 MB**, Enabled 64 MB, and Enabled 128 MB.

IGD GTT Graphics Memory Size

This feature allows the user to select the IGD GTT Graphics Size. The Default setting is **No VT Mode, 2 MB**.

PEG Port Configuration

PEG Port (PCI-E Graphics Port)

Use the feature to configure the PEG Port. The Default setting is **Auto** to allow the PEG Port to be automatically detected and configured by the BIOS.

▶Video Function Configuration

DVMT Mode Select

Select DVMT Mode to enable Dynamic Video Memory Technology (DVMT) mode, which dynamically allocates video memory for optimal efficiency on 2D/3D video applications. The options are Fixed Mode and **DVMT Mode.**

DVMT/Fixed Memory

This option allows the user to set the amount of memory to be used for the operation of DVMT/Fixed Mode. The options are 128 MB, **256 MB** and Maximum DVMT.

Spread Spectrum Clock

If Enabled, the BIOS will monitor the level of Electromagnetic Interference caused by the components and will attempt to decrease the interference whenever needed. The options are Enabled and **Disabled**.

Frontside Audio Mode

This feature lets you choose the audio mode for the front-side audio connectors of the motherboard. Select **HD Audio** for High Definition Audio or AC'97 for legacy audio. The options are **HD Audio** and AC'97.

Active State Power Management

Select Enabled to enable Active-State Power Management for signal transactions between L0 and L1 Links on the PCI Express Bus in order to maximize power-saving and transaction speeds. The options are Enabled and **Disabled**.

USB Functions

This feature allows the user to decide the number of onboard USB ports to be enabled. The options are: Disabled, 2 USB ports, 4 USB ports, 6 USB ports, and **8 USB ports.**

USB2.0 Controller

Select **Enabled** to activate the onboard USB2.0 controller. The options are **Enabled** and Disabled. Note: This function is not available if USB Functions above is set to more than 8 USB ports.

▶USB Configuration

This feature allows the user to configure USB settings for the motherboard.

Legacy USB Support

Select Enabled to use Legacy USB devices. If this item is set to Auto, Legacy USB support will be automatically enabled if a legacy USB device is installed on the motherboard, and vise versa. The settings are Disabled, **Enabled** and Auto.

USB 2.0 Controller Mode

This setting allows you to select the USB 2.0 Controller mode. The options are Full Speed (12 Mbps).and **HiSpeed** (480 Mbps).

BIOS EHCI Hand-Off

Select Enabled to enable BIOS Enhanced Host Controller Interface support to provide a workaround solution for an operating system that does not have EHCI Hand-Off support. When enabled, the EHCI Interface will be changed from the BIOS-controlled to the OS-controlled. The options are Disabled and **Enabled**.

USB Beep Message

Select Enabled to activate a beep alarm when an error occurs on a USB device at bootup. The options are **Disabled** and Enabled.

▶IDE Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the IDE Devices and displays the following items:

ATA/IDE Configuration

This feature allows the user to configure the ATA/IDE settings. The options are Disabled, Compatible and **Enhanced**.

Legacy IDE Channels (Available when Compatible is selected)

This feature allows the user to select what type of IDE channel(s) to use (SATA or PATA) and in what priority (Primary or Secondary). The options are SATA Only, PATA Pri/SATA Sec, **SATA Pri/PATA Sec**, and PATA Only.

Hard Disk Write Protect

Select Enabled to use the feature of Hard Disk Write Protect to prevent data from being written to HDD. The options are **Disabled** and Enabled.

IDE Detect Time Out (Sec)

Use this feature to set the time-out value for the BIOS to detect the ATA, ATAPI devices installed in the system. The options are 0 (sec), 5, 10, 15, 20, 25, 30, and **35**.

Primary IDE Master/Slave, Secondary IDE Master/Slave, Third IDE Master/Slave (Third IDE is available only when Enhanced is selected under ATA/IDE Configuration)

These settings allow the user to set the parameters of Primary IDE Master/Slave, Secondary IDE Master/Slave and Third IDE Master/Slave slots. Hit <Enter> to activate the following submenu screen for detailed options of these items. Set the correct configurations accordingly. The items included in the submenu are:

Type

Select the type of device connected to the system. The options are Not Installed, **Auto**, CD/DVD and ARMD (ATAPI Removable Media Device).

LBA/Large Mode

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. In the LBA mode, the maximum drive capacity is 137 GB. For drive capacities over 137 GB, your system must be equipped with a 48-bit LBA mode addressing. If not, contact your manufacturer or install an ATA/133 IDE controller card that supports 48-bit LBA mode. The options are Disabled and **Auto**.

Block (Multi-Sector Transfer)

Block Mode boosts the IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if Block Mode is not used. Block Mode allows transfers of up to 64 KB per interrupt. Select Disabled to allow data to be transferred from and to the device one sector at a time. Select Auto to allow data transfer from and to the device occur multiple sectors at a time if the device supports it. The options are Disabled and **Auto.**

PIO Mode

The IDE PIO (Programmable I/O) Mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases. The options are **Auto**, 0, 1, 2, 3, and 4. Select Auto to allow the AMI BIOS to automatically detect the PIO mode. Use this value if the IDE disk drive support cannot be determined. Select 0 to allow the AMI BIOS to use PIO mode 0. It has a data transfer rate of 3.3 MBs. Select 1 to allow the AMI BIOS to use PIO mode 1. It has a data transfer rate of 5.2 MBs. Select 2 to allow the AMI BIOS to use PIO mode 2. It has a data transfer rate of 8.3 MBs. Select 3 to allow the AMI BIOS to use PIO mode 3. It has a data transfer rate of 11.1 MBs. Select 4 to allow the AMI BIOS to use PIO mode 4. It has a data transfer rate of 16.6 MBs. This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.

DMA Mode

Select Auto to allow the BIOS to automatically detect IDE DMA mode when the IDE disk drive support cannot be determined. Select SingleWordDMA0 to allow the BIOS to use Single Word DMA mode 0. It has a data transfer rate of 2.1 MBs. Select SingleWordDMA1 to allow the BIOS to use Single Word DMA mode 1. It has a data transfer rate of 4.2 MBs. Select SingleWordDMA2 to allow the BIOS to use Single Word DMA mode 2. It has a data transfer rate of 8.3 MBs. Select MultiWordDMA0 to allow the BIOS to use Multi Word DMA mode 0. It has a data transfer rate of 4.2 MBs. Select MultiWordDMA1 to allow the BIOS to use Multi Word DMA mode 1. It has a data transfer rate of 13.3 MBs. Select MultiWordDMA2 to allow the BIOS to use Multi Word DMA mode 2. It has a data transfer rate of 16.6 MBs. Select UltraDMA0 to allow the BIOS to use Ultra DMA mode 0. It has a data transfer rate of 16.6 MBs. It has the same transfer rate as PIO mode 4 and Multi Word DMA mode 2. Select UltraDMA1 to allow the BIOS to use Ultra DMA mode 1. It has a data transfer rate of 25 MBs. Select UltraDMA2 to allow the BIOS to use Ultra DMA mode 2. It has a data transfer rate of 33.3 MBs. Select UltraDMA3 to allow the BIOS to use Ultra DMA mode 3. It has a data transfer rate of 66.6 MBs. Select UltraDMA4 to allow the BIOS

to use Ultra DMA mode 4 . It has a data transfer rate of 100 MBs. The options are **Auto**, SingleWordDMAn, MultiWordDMAn, and UltraDMAn.

S.M.A.R.T.

Self-Monitoring Analysis and Reporting Technology (SMART) can help predict impending drive failures. Select Auto to allow the AMI BIOS to automatically detect hard disk drive support. Select Disabled to prevent the AMI BIOS from using the S.M.A.R.T. Select Enabled to allow the AMI BIOS to use the S.M.A.R.T. to support hard drive disk. The options are Disabled, Enabled, and **Auto**.

32-Bit Data Transfer

Select **Enabled** to enable 32-Bit data transfer. The options are Disabled and **Enabled**.

▶PCI/PnP Configuration

This feature allows the user to set the PCI/PnP configurations for the following items:

Clear NVRAM

Select Yes to clear NVRAM during system boot. The options are **No** and Yes**.**

Plug & Play OS

Select Yes to allow the OS to configure Plug & Play devices. (This is not required for system boot if your system has an OS that supports Plug & Play.) Select **No** to allow the AMI BIOS to configure all devices in the system.

PCI Latency Timer

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select **64** to set the PCI latency to 64 PCI clock cycles. The options are 32, **64**, 96,128,160, 192, 224 and 248.

Allocate IRQ to PCI VGA

Select Yes to allow the system to give the VGA adapter card an interrupt address. The options are **Yes** and No.

Palette Snooping

Select Enabled to inform the onboard PCI devices that an ISA graphics device is installed in the system in order for the graphics card to function properly. The options are **Disabled** and Enabled.

PCI IDE BusMaster

Select Enabled to allow the BIOS to use the PCI busmaster to read from and write to the onboard IDE drives. The options are Disabled and **Enabled**.

Slot 4 PCI 33MHz, Slot 5 PCI 33MHz, Slot 6 PCIE X1, Slot 7 PCIE X16

Select **Enabled** to activate the OPROM for a PCI slot specified. The options are **Enabled** (to enable OPROM for the slot specified) and Disabled.

Load Onboard LAN 1 Option ROM

Select Enabled to load the onboard LAN Option ROM. The options are Enabled and **Disabled**.

▶Super IO Configuration

Serial Port1 ~ Port2 Address

This option specifies the base I/O port address for the Serial Ports. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable.

For Serial Port1, select the address to use as its I/O port address. The options are Disabled, **3F8/IRQ4**, 3E8/IRQ4, and 2E8/IRQ3.

For Serial Port2, select the address to use as its I/O port address. The options are Disabled, **2F8/IRQ3**, 3E8/IRQ4, and 2E8/IRQ3.

Serial Port 2 Mode

Use this feature to configure Serial Port 2 mode. The options are **Normal,** IrDA and ASK IR. IrDA (Infra-Red Data) is an industry standard for remote control devices. ASK IR (Amplitude Shifted Keying Infra-Red) is a protocol compatible with Sharp® branded PDAs and other infra-red devices.

▶Hardware Health Configuration

This feature allows the user to monitor Hardware Health of the system and review the status of each item when displayed.

CPU Overheat Alarm

This option allows the user to select the CPU Overheat Alarm setting which determines when the CPU OH alarm will be activated to provide warning of possible CPU overheat.

Warning: Any temperature that exceeds the CPU threshold temperature predefined by the CPU manufacturer may result in CPU overheat or system

instability. When the CPU temperature reaches this predefined threshold, the CPU and system cooling fans will run at full speed.

The options are:

The Early Alarm: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered as soon as the CPU temperature reaches the CPU overheat threshold as predefined by the CPU manufacturer.

The Default Alarm: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered when the CPU temperature reaches about 5ºC above the threshold temperature as predefined by the CPU manufacturer to give the CPU and system fans additional time needed for CPU and system cooling.

CPU Temperature

The CPU Temperature feature will display the CPU temperature status as detected by the BIOS:

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm:

The Default Alarm – the Overheat LED and system buzzer will activate if the High condition continues for some time after it is reached. The CPU fan will run at full speed to bring the CPU temperature down. If the CPU temperature still increases even with the CPU fan running at full speed, the system buzzer will activate and the Overheat LED will turn on.

The Early Alarm – the Overheat LED and system buzzer will be activated exactly when the High level is reached. The CPU fan will run at full speed to bring the CPU temperature down.

Note: In both the alarms above, please take immediate action as shown below. See CPU Overheat Alarm to modify the above alarm settings.

User intervention: If the system buzzer and Overheat LED has activated, take action immediately by checking the system fans, chassis ventilation and room temperature to correct any problems. Note: the system may shut down if it continues for a long period to prevent damage to the CPU.

Notes: The CPU thermal technology that reports absolute temperatures (Celsius/Fahrenheit) has been upgraded to a more advanced feature by Intel in its newer processors. The basic concept is that each CPU is embedded by a unique temperature information that the motherboard can read. This 'Temperature Threshold' or 'Temperature Tolerance' has been assigned at the factory and is the baseline by which the motherboard takes action during different CPU temperature conditions (i.e., by increasing CPU Fan speed, triggering the Overheat Alarm, etc). Since CPUs can have different 'Temperature Tolerances', the installed CPU can now send its 'Temperature Tolerance' to the motherboard resulting in better CPU thermal management.

Supermicro has leveraged this feature by assigning a temperature status to certain thermal conditions in the processor (Low, Medium and High). This makes it easier for the user to understand the CPU's temperature status, rather than by just simply seeing a temperature reading (i.e., 25^{o}C).

The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

System Temperature

This displays the absolute system temperature (i.e., 34^{o}C).

Fan Speed Control Modes

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase, and vice versa. Select Workstation if your system is used as a Workstation. Select Server if your system is used as a Server. Select Disabled to disable the fan speed control function and allow the onboard fans to constantly run at the full speed (12V). The options are: **Full Speed** (Disabled), WS/Desktop, and Super Quiet.

Fan Speeds:

The BIOS will automatically display the speed of the fans indicated in this item, in RPMs.

Voltage Monitoring

Vcore / Vnbcore / VDIMM / 5V / 12V / 3.3Vcc / Vbat

Note: In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

▶Remote Access Configuration

Remote Access

This allows the user to enable the Remote Access feature. The options are **Disabled** and Enabled.

If Remote Access is set to Enabled, the following items will display:

Serial Port Number

This feature allows the user decide which serial port to be used for Console Redirection. The options are **COM 1** and COM 2.

Serial Port Mode

This feature allows the user to set the serial port mode for Console Redirection. The options are **115200 8, n 1**; 57600 8, n, 1; 38400 8, n, 1; 19200 8, n, 1; and 9600 8, n, 1.

Flow Control

This feature allows the user to set the flow control for Console Redirection. The options are **None**, Hardware, and Software.

Redirection After BIOS POST

Select Disabled to turn off Console Redirection after Power-On Self-Test (POST). Select Always to keep Console Redirection active all the time after POST. (Note: This setting may not be supported by some operating systems.) Select Boot Loader to keep Console Redirection active during POST and Boot Loader. The options are Disabled, Boot Loader, and **Always**.

Terminal Type

This feature allows the user to select the target terminal type for Console Redirection. The options are ANSI, **VT100**, and VT-UTF8.

VT-UTF8 Combo Key Support

A terminal keyboard definition that provides a way to send commands from a remote console. Available options are **Enabled** and Disabled.

Sredir Memory Display Delay

This feature defines the length of time in seconds to display memory information. The options are **No Delay,** Delay 1 Sec, Delay 2 Sec, and Delay 4 Sec.

▶Trusted Computing

TCG/TPM Support

Select Yes to enable support for trusted platforms (TPM 1.2) and allow the BIOS to automatically download the drivers needed to provide support for the platforms specified. The options are Yes and **No**.

Execute TPM Command

This feature Enables or Disables the sending of commands to the TPM. The options are **Don't Change**, Enabled and Disabled.

Clear the TPM

Press <Enter> to clear the TPM memory. This will erase all information related to TPM support.

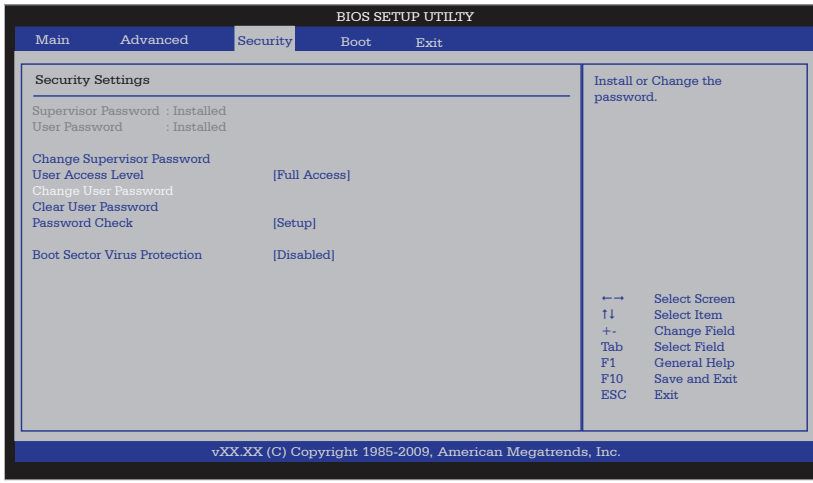
If TCG/TPM Support is set to Yes, the TPM Status will display:

TPM Enable/Disable Status

TPM Owner Status

4-4 Security Settings

The AMI BIOS provides a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first.



Supervisor Password:

This item indicates if a supervisor password has been entered for the system. Clear means such a password has not been used and Set means a supervisor password has been entered for the system.

User Password:

This item indicates if a user password has been entered for the system. Clear means such a password has not been used and Set means a user password has been entered for the system.

Change Supervisor Password

Select this option and press <Enter> to access the submenu, and then type in a new Supervisor Password.

User Access Level (Available when Supervisor Password is set as above)

Available options are **Full Access**: grants full User read and write access to the Setup Utility, View Only: allows access to the Setup Utility but the fields cannot be changed, Limited: allows only limited fields to be changed such as Date and Time, No Access: prevents User access to the Setup Utility.

Change User Password

Select this option and press <Enter> to access the submenu, and then type in a new User Password.

Clear User Password (Available only if User Password has been set)

Use this option to clear the User Password. The options are **OK** and Cancel.

Password Check

Use this option to configure when users are prompted for a password. Available options are **Setup** and Always.

Setup - Ask for password before granting access to the BIOS setup utility only.

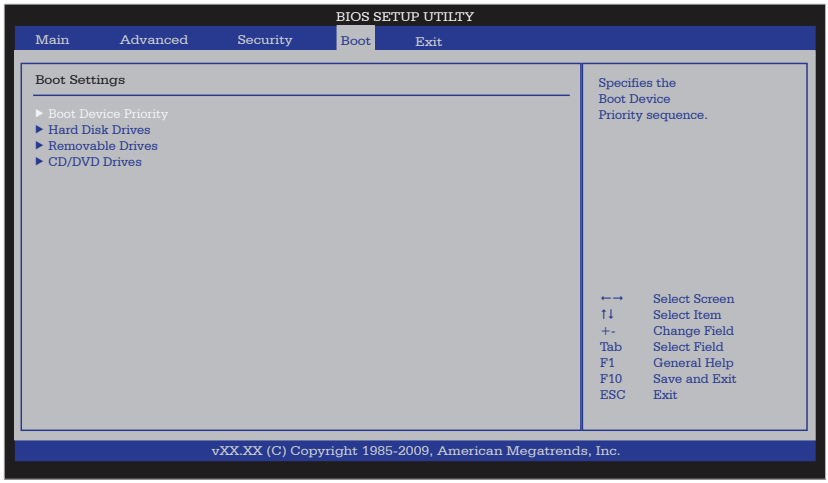
Always - Ask for password before granting access to the BIOS setup utility and each time the system boots.

Boot Sector Virus Protection

This option is near the bottom of the Security Setup screen. When Enabled, the AMI BIOS displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The options are Enabled and **Disabled**.

4-5 Boot Configuration

Use this feature to configure Boot Settings:



▶Boot Device Priority

This feature allows the user to specify the sequence of priority for the Boot Device.

The settings are 1st Floppy Drive and Disabled. The default settings are the following:

- 1st Boot Device – 1st Floppy Drive
- 2nd Boot Device - SATA

▶Hard Disk Drives

This feature allows the user to specify the boot sequence from available Hard Disk Drives.

- 1st Drive - SATA

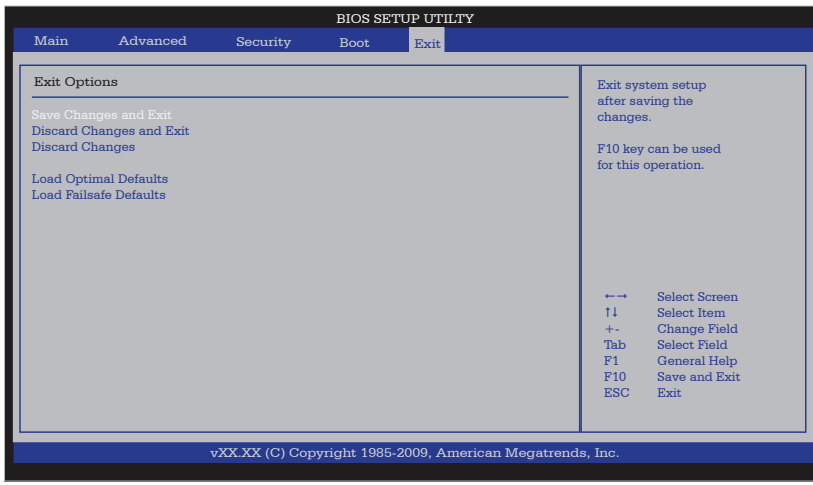
▶Removable Drives

This feature allows the user to specify the boot sequence from available Removable Drives.

- 1st Drive

4-6 Exit Options

Select the Exit tab from the AMI BIOS Setup Utility screen to enter the Exit BIOS Setup screen.



Save Changes and Exit

When you have completed the system configuration changes, select this option to leave the BIOS Setup Utility and reboot the computer, so the new system configuration parameters can take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS Utility Program.

Load Optimal Defaults

To set this feature, select Load Optimal Defaults from the Exit menu and press <Enter>. Then, select OK to allow the AMI BIOS to automatically load Optimal Defaults to the BIOS Settings. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications.

Load Fail-Safe Defaults

To set this feature, select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The Fail-Safe settings are designed for maximum system stability, but not for maximum performance.

Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list, on the following page, correspond to the number of beeps for the corresponding error.

BIOS Error Beep Codes

Beep Code	Error Message	Description
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps, 1 long beep	Memory error	No memory detected in the system
8 beeps	Display memory read/write error	Video adapter missing or with faulty memory
1 continuous beep (with the front panel OH LED on)	System Overheat	1 continuous beep with the front panel OH LED on

Notes

Appendix B

Installing the Microsoft® Windows® OS

After all the hardware has been installed, you may now install your Operating System. The following instructions assume that you are installing a fresh copy of Windows OS into an empty partition on a disk drive.

B-1 Installing the Microsoft Windows XP/2003 Operating System

1. Turn on the system and insert the Microsoft Windows XP/2003 Setup CD in the CD or DVD Drive.

2. Reboot the system.

3. The system will perform POST and search for a bootable drive.

4. When prompted by the system asking whether you wish to boot from the CD, press the space bar on your keyboard.

5. The Windows OS Setup screen will display. Windows OS Setup will automatically load all Windows-supplied device drivers and then continue with the Windows XP/2003 installation.

6. You will be asked to enter the disk partition where the Operating System is to be installed (please see Warning below), and to enter the date/time, and the Windows Activation Key.

7. After the Windows XP/2003 OS Installation is completed, the system will automatically reboot.

8. Insert the Supermicro Setup CD that came with your motherboard into the CD Drive during system boot, and the main screen will display. Follow the on-screen instructions.

Note: To install the Linux Operating System, please refer to the OS Installation Guides posted on our web site at www.supermicro.com/support/manuals. For other Operating System platforms, please follow your software provider's instructions.

Warning: You will lose all data residing in a disk drive partition when it is deleted or reformatted.

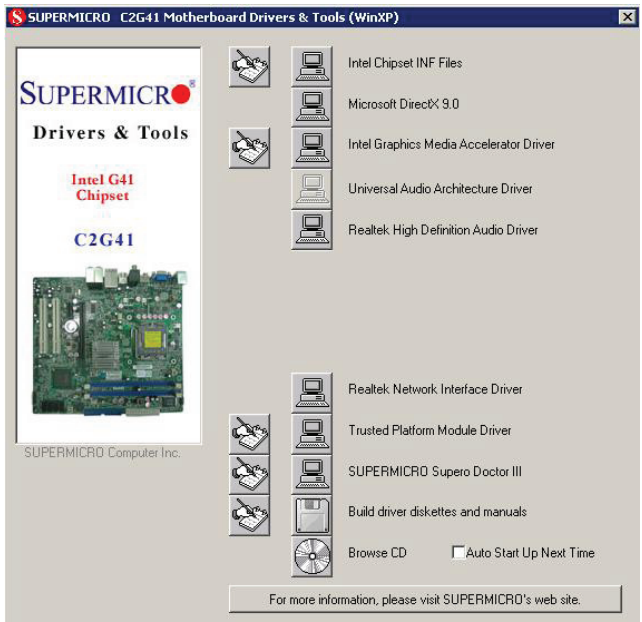
Notes

Appendix C

Software Installation Instructions

A. Installing Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these software programs and drivers, click the icons to the right of these items.



Driver/Tool Installation Display Screen

Notes:

1. Click the icons showing a hand writing on the paper to view the readme files for each item. Click a computer icon to the right of an item to install an item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before proceeding with the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

B. Configuring Supero Doctor III

The Supero Doctor III program is a Web-base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

Note 1: Both default user name and password are ADMIN.

Note 2: In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

Supero Doctor III Interface Display Screen-I (Health Information)

Supero Doctor III Interface Display Screen-II (Remote Control)

File Edit View Favorites Tools Help
Super Doctor III
Remote Management
SUPERMICRO
ADMIN
System Info. Health Info. Performance Remote Control Configuration Administration Systems Management Report Help
Remote Control
Graceful Power Control
Open Console
Power Control
Enter
Comm.
Graceful power control
Supero Doctor III allows a user to inform the OS to reboot or shut down within a specified time (the default is 30 seconds). Before the system reboots or shuts down, it's allowed to cancel the action.
Requirements
Keep Supero SD3Service Daemon running at all times on this system.
Provide TCP/IP connectivity.
Power control

Note: SD III Software Revision 1.0 can be downloaded from our Web site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download SDIII User's Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/User-Guide.pdf. For Linux, we will still recommend that you use Supero Doctor II.

Notes

Appendix D - BIOS Recovery

The recovery procedure described in this section is to be used only when advised by your Supermicro Technical Support representative, or in cases of emergencies where the system no longer can boot due to a corrupted BIOS. DO NOT re-program (re-flash) the BIOS if your system is running properly.

D-1 Recovery Process from a USB Device/Drive (Recommended Method)

If the BIOS file is corrupted and the system is not able to boot up, this feature will allow you to recover the BIOS image using a USB-attached device. A USB Flash Drive or a USB CD/DVD ROM/RW drive may be used for this purpose. Please note that a USB Hard Disk drive is NOT supported at this time and the recovery process will only recognize COM1. Below is a two-part procedure to recover the BIOS:

Part 1: Boot Sector Recovery Process

1. Using a different system, download and copy the correct BIOS binary image into a USB flash device or a writable CD/DVD disc's Root "\" Directory. Rename the downloaded file to "super.rom", so the recovery process can recognize and read the BIOS binary file.

2. Insert the USB device that contains the new BIOS binary image (“super.rom”) and power the system down.

3. While powering on the system, press and hold <Ctrl> and <Home> simultaneously on your keyboard until the USB device's LED indicator comes on. This will take a few seconds or up to one minute.

4. Once the USB device's LED is on, release the <Ctrl> and <Home> keys. The system may generate beep codes to indicate that the BIOS ROM firmware is being reprogrammed. The screen will also display a message as shown below. DO NOT INTERRUPT THIS PROCESS!

5. When the Boot Sector Recovery Process is complete, the system will reboot automatically and you will see a checksum error on your screen.

Part 2 - BIOS Reprogramming (Re-Flashing)

After completing the Boot Sector Recovery Process, you will need to reprogram ("re-flash") the proper BIOS binary file again into the BIOS ROM in order to have the correct BIOS file loaded by the system. For details on how to flash/re-flash a BIOS, please check our website for "Update your BIOS", or see the section 3-3 (FAQ) of this manual. DO NOT INTERRUPT THIS PROCESS!

When completed, the system will reboot automatically, and you will see a checksum error again.

Press "F1" to go to setup. Press "F9" to load the defaults and then press "F10" to save and exit.

D-2 Recovery Process from an IDE/SATA ATAPI Disc Drive

This process is identical to the Boot Sector Recovery Process from a USB Device/ Drive (as above), except that the BIOS image file ("super.rom") is loaded from an IDE/ATAPI CD/DVD/ROM/RW disc drive that is attached to the system. Note that loading from an IDE/SATA hard disk drive is NOT supported.

1. Using a different system, download and copy the correct BIOS binary image into a writable CD/DVD disc's Root "\" Directory. Rename the downloaded file to "super.rom", so the recovery process can recognize and read the BIOS binary file.

Note: Record/Burn the CD/DVD-R/RW disc using the ISO 9600 standard format. Refer to your CD/DVD mastering application documentation for instructions on how to do this.

2. Insert the newly-created disc into the IDE/SATA ATAPI CD/DVD ROM/RW drive of the system that has the corrupted BIOS and power the system down.

3. Follow the step-by-step instructions under Part 1 - Recovery Process from a USB Device/Drive (above) starting from Step 3 and continue on to Part 2 - BIOS Reprogramming (Re-Flashing).

If your system still does not boot up after performing the above procedure, then there may be other issues with your motherboard. Please contact your customer service representative.

(Disclaimer)

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